

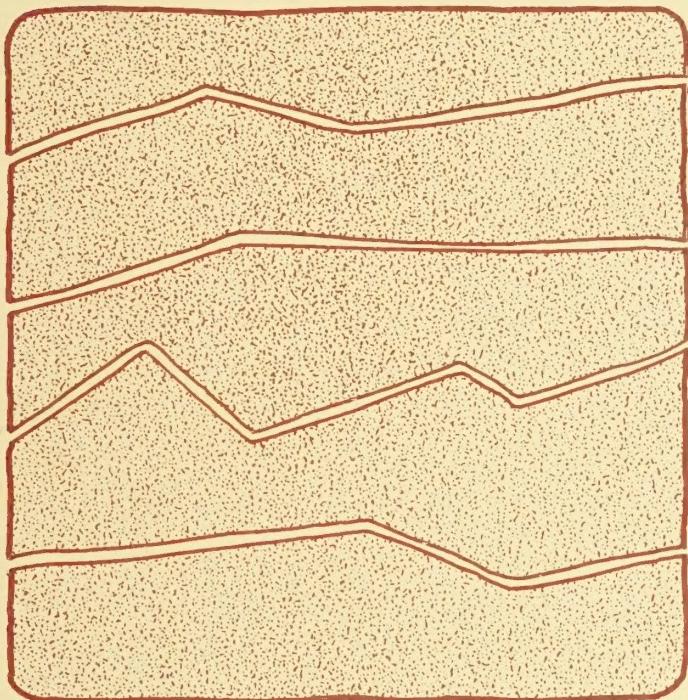
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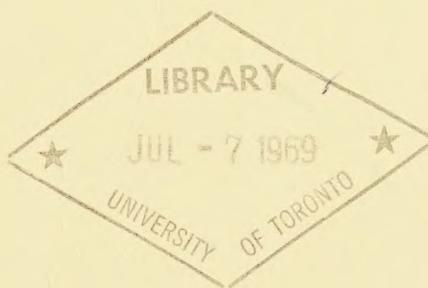
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TRENDS IN JOB FAMILIES AND EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE



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ECONOMIC PLANNING BRANCH · POLICY PLANNING DIVISION
DEPARTMENT OF TREASURY AND ECONOMICS



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TRENDS IN JOB FAMILIES AND
EDUCATIONAL ACHIEVEMENT OF THE
ONTARIO LABOUR FORCE

Economic Planning Branch
Policy Planning Division
Department of Treasury and Economics

Hon. Charles S. MacNaughton,
Treasurer of Ontario and
Minister of Economics.

H. Ian Macdonald,
Deputy Minister.

May, 1969

PREFACE

In August 1966, an Interdepartmental Committee on the Economic Analysis of Education Programs met to prepare outlines for a number of research projects. The purpose of the studies was to provide the Ontario Department of Education, as well as other departments of government, with information which would assist them in establishing long-run policy. The analysis in this document focuses primarily on Ontario, but comparative data for Canada has been included in order to draw attention to underlying national trends.

This report was prepared by J. Burkus and is the first in a series of related studies undertaken by the Economic Planning Branch. During 1969, other phases of the same project dealing with projections of output, employment and productivity by industry will be completed and integrated with the findings presented here.

C. P. Honey
Director
Economic Planning Branch

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TRENDS IN JOB FAMILIES AND EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE

1. Introduction

The process by which growth occurs has been one of the most important subjects of enquiry in economics.

In recent years, a number of economists have turned their attention from the traditional analysis of the physical inputs of capital, land and labour to an examination of the relationship between education and economic growth.⁽¹⁾ While education is desirable for many reasons other than its contribution to economic growth, this study is concerned with exposing some of the changing interrelationships between educational levels, occupational content and industrial distributions of the labour force.

In order to maximize economic growth, minimize unemployment and improve the operation of the labour market, the levels of education and training of the labour force should correspond to present and anticipated demands. This is a goal toward which those concerned with educational planning should strive. It is hoped that this study will contribute to the attainment of that goal.

This report examines the nature of changes in job families and

(1) See as examples G.W. Bertram's study The Contribution of Education to Economic Growth, Staff Study No. 12, Economic Council of Canada, June, 1966, and O.J. Firestone's Industry and Education: A Century of Canadian Development, Ottawa: University of Ottawa Press, 1969, Part II.

provides an indication of current and future educational achievement levels for the Ontario labour force. Some data on the Canadian labour force have also been included in order to provide a broader frame of reference. For the period 1971-1991, estimates have been prepared of the anticipated number of persons in the various job families as well as the educational requirements for these families.

2. Methodology

The approach taken was to convert civilian labour force data into a job content format. This format is outlined in The Job Content of the Canadian Economy 1941, 1951, and 1961, - a study carried out for the Dominion Bureau of Statistics, Census and Labour Divisions, by J.G. Scoville. Here, the labour force data for the Census years 1941, 1951 and 1961 were analyzed in terms of job content. A review of the above study plus the original thesis⁽¹⁾ and a related publication, The Job Content of the Canadian Economy 1941-61, by Sylvia T. Wargon⁽²⁾ indicated that the methodology would be useful as a starting point for this study.

The occupational data which are classified by major industrial

(1) J.G. Scoville, The Job Content of the U.S. Economy, 1940-1970: An Attempt at Quantification (a thesis presented to the Department of Economics, Harvard University, Cambridge, Mass., 1964).

(2) Technical Memorandum (General Series) No. 12 DBS, Census Division, Ottawa, 1966.

divisions in the Canadian Census have previously been found to be non-representative of the jobs that people actually do. In the analysis of social and economic problems,

"...there is, and long has been, a real need for statistics showing in summary form an occupational distribution of the Nation's labour force - a need for statistics that cut across industry lines and bring together... (a family) of occupationally homogeneous groups...".(1)

An industrial break-down of the labour force which classifies workers according to a series of end products is unsatisfactory for our purposes because it does not reveal the technical orientation of the various types of jobs performed.

Since Census occupational data does not tell us the particular type of function performed or service rendered, it was felt that these statistics would have a low transfer value in determining the ability, training, and skills that future workers will require to match the types of jobs then available. Thus, the occupational classifications in the Canadian Census have been regrouped into a somewhat different and more amenable format.

This study employs the job content approach developed by Scoville. Labour force data have been reclassified into 18 job families in such a way that the occupations within each job family are

(1) Comparative Occupational Statistics for the United States, 1870-1940, U.S. Bureau of the Census, 1943, p. 175, quoted in J.G. Scoville, The Job Content of the U.S. Economy.

as homogeneous as the data permit. As Scoville explains,

"A job family is principally defined by the material, equipment or functions about which the jobs in it are centered. In the analysis of job content, it is highly important to determine the focus of the job. The content of the job depends on a whole host of factors about which this sort of question can be asked; does the job involve handling materials, tools, machines, money or dealing with people? Such technical considerations determine in large degree the skills, effort, responsibilities and other attributes required by a job."⁽¹⁾

Moreover, the occupations included within each job family are related to one another by several characteristics which themselves may prove useful in the areas of worker training, mobility and wage structure. These characteristics, which underlie the basic homogeneity of each job family, are promotion, substitutability, and transferability. They have been used to determine the number and scope of the occupational classifications employed in this study.

Each job family contains broad avenues of promotion: "A common technical focus will characterize jobs at different levels of the promotional ladder."⁽²⁾ Furthermore, each job family is characterized by the range of jobs that a person can perform (transferability) or the range of persons who can perform a job (substitutability). Thus,

(1) J.G. Scoville, The Job Content of the US Economy, pp. 48-49.

(2) Ibid., p.55.

whether members of the labour force have narrowly specialized skills or, alternatively, more widely applicable skills, the determination of substitutability or transferability is particularly relevant to the consideration of problems associated with changes in the job structure.

The job structure scheme developed by Scoville recognizes that within the plant, or unit of operation, there exist clusters of families of jobs that are focused on a department, process or machine and are likewise connected by educational and training requirements. Logically, job families could be created on the aggregate level by summing the job clusters found at the plant level. However, it is practically impossible, because of the limitations of labour force data, to estimate the microeconomic families as aggregates of the microeconomic clusters. The families developed by Scoville represent a trade-off between a desire to develop groupings that are meaningful for study and the fact that present Census data are suitable only for the construction of broad families. Some examples of the occupations included in the 18 job families used in this study are given below.⁽¹⁾

1. Tools - Specialized

e.g., shoemakers, plasterers, tailors, longshoremen

2. Tools - Non-specialized

e.g., welders, boilermakers, furniture makers

(1) This discussion closely follows J.G. Scoville, The Job Content of the Canadian Economy, 1941, 1951 and 1961, DBS, Special Labour Force Studies No. 3, pp. 8-9.

3. Machines and Equipment - Specialized

e.g., construction equipment operators, mine labourers, millers

4. Machines and Equipment - Non-specialized

e.g., rolling mill operators, cranemen, temperers

'Tools' encompass those instruments normally included under that title as well as smaller machines for which one man is responsible: 'Machines' generally involving longer processes and numerous inter-related jobs. The 'Tools' and 'Machines' families were divided into specialized and non-specialized jobs - the first group of jobs is narrowly specialized by industry or function, whereas non-specialized jobs have a relatively wide range of applicability.

5. Inspection

e.g., foremen, inspectors, graders

6. Vehicle Operation

e.g., truck drivers, taxi drivers, driver-salesmen

7. Farm

e.g., farmers, stockraisers, farm labourers

8. Sales - Considerable Knowledge Required

e.g., insurance agents, real estate agents, security salesmen

9. Sales - Considerable Knowledge Not Required

e.g., sales clerks, news vendors, canvassers

The focus of job families 8 and 9 is on selling, but the first class of jobs requires a more detailed knowledge of product characteristics, whereas job family 9 is focused more on the act of selling itself.

10. Clerical

e.g., accountants, stenographers, typists, telephone operators, postmen

11. Personal Service

e.g., housekeepers, cooks, barbers, waiters

12. Entertainment

e.g., artists, music teachers

13. Protection

e.g., firemen, guards, policemen

14. Education and Training

e.g., professors, teachers

15. Health

e.g., physicians, pharmacists, nurses

16. Welfare

e.g., clergymen, social welfare workers

17. Administration and Organization

e.g., managers, lawyers, computer programmers

18. Research and Design

e.g., engineers, scientists, architects,
economists, draughtsmen

In order to provide some insight into the educational requirements of the various occupations in the economy, the job family format includes a percentage distribution showing educational achievement. Unfortunately, since the available data with respect to educational attainment levels are somewhat incomplete in the Census, it was found necessary to use an approach which is not as theoretically

satisfying.⁽¹⁾ For example, there are no figures which show the educational achievements of the Ontario labour force by age groups. As a result, the Canadian data - which probably underestimate the attainment levels of the Ontario labour force - had to be applied to the Ontario analysis. Moreover, a percentage distribution of job families by educational achievement could only be computed for the 1961 Census data. This meant that a time series could not be constructed and the research performance focused on cross sectional analysis.

In order to compensate for these data limitations, the educational achievement levels of the Canadian labour force aged 25 - 34 were assumed to represent the average educational achievement of new entrants to the labour force. Since the 25 - 34 age group has a higher educational achievement than the labour force as a whole, the choice of this age group helps to compensate for the data constraints described above. The characteristics of the 25 - 34 age group can be also interpreted as suggesting the direction in which the total labour force is heading and thus approximate the trend line that cannot be constructed.

(1) Tabulations in this study are based on the 1961 Census Population Questionnaire which asked, "What was the highest grade or year of schooling you ever attended?".

As a result of changing Census definitions an accurate time series cannot be developed. Occupational data in the Census years prior to 1961 are not completely comparable to the 1961 Census figures. Only the 1941 and 1951 Census data can reasonably be compared with the 1961 occupational data, and even here some differences of definition and classification exist. The differences did not preclude some 1941-1951-1961 comparisons. In any event there are only three fairly comparable Census years. The first (1941) is hardly a suitable base year. Thus, a completely reliable time series cannot be constructed. Another problem arises from the fact that the Census gives no information on post-secondary education other than university.

Notwithstanding the data limitations, this study can make several important contributions to educational planning. The occupational classifications by job families that have been developed are as homogeneous as the data permit. They provide meaningful breakdowns of the census data. The distribution of the labour force by technical focus and by educational achievement serves the two broad aims of providing a basis for useful analysis of training and educational requirements and shedding light on patterns of occupational mobility.

3. Trends in Job Families, 1941 - 1961

This section examines the extent to which changes have occurred in each of the 18 job families in both Ontario and Canada.

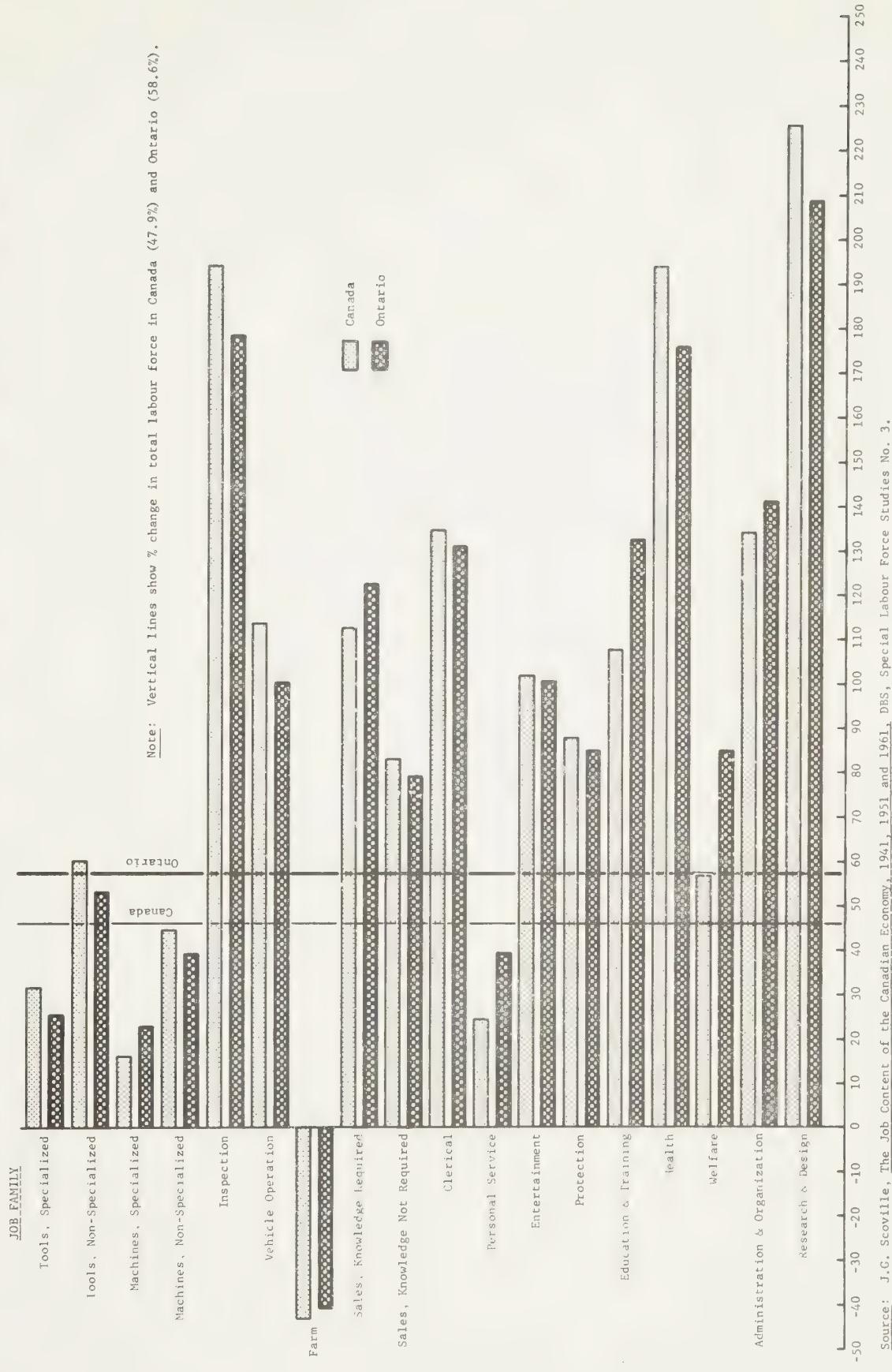
Chart I illustrates the developments during the two decades 1941-1961. It has not been possible to show changes over a longer time span because earlier Census data are not comparable.

In order to facilitate the analysis, the data have been grouped into four categories: job families which increased at a rate significantly greater than the labour force; job families which increased at or about the same rate as the labour force; those which exhibited little or no change relative to the change in the size of the labour force; and those job families which declined absolutely during the period under review.

Chart I shows the rate of change over the period 1941-1961 in each job family and indicates that the groups showing growth significantly greater than the labour force were the inspection, health, research and design job families. In 1961 these job families taken together accounted for about 211,000 persons in the Ontario labour force. In both Canada and Ontario these job families exhibited rates of growth about three to four times greater than the overall change in the size of the labour force. Each of these three job families in the Canadian labour force grew at a faster rate than the comparable job family in the Ontario labour force. One explanation is that the proportion of persons in each of these job families relative to the total labour force was smaller in Canada than in Ontario in 1941. Despite the more rapid growth of these job families in Canada, the proportion of workers to the total labour force in

CHART 1

PERCENTAGE CHANGE IN TOTAL LABOUR FORCE AND JOB FAMILIES, ONTARIO AND CANADA, 1941-1961.



Source: J.G. Scoville, The Job Content of the Canadian Economy, 1941, 1951 and 1961, DBS, Special Labour Force Studies No. 3.

each job family remained greater in Ontario in 1961. Although these three job families exhibited the highest rate of growth between 1941 and 1961, taken together they accounted for only 9.2 per cent of the Ontario labour force and 8.2 per cent of the Canadian labour force in 1961.

Other job families which grew at rates appreciably greater than the labour force as a whole were: vehicle operation (117,000);⁽¹⁾ sales - considerable knowledge of product required (59,000); sales - little knowledge of product required (124,000); clerical (369,000); entertainment (12,000); protection (30,000); education and training (61,000); welfare, Ontario (13,000); and administration and organization (219,000).

Job families which showed changes between 1941 and 1961 that were about the same as changes in the total labour force included tools - non-specialized (393,000); machines - non-specialized (207,000); and welfare, Canada.

Tools - specialized (99,000), machines - specialized (53,000), and personal service (160,000) job families all increased at less than average rates in Ontario and Canada during the period under review.

(1) Figures in brackets show Ontario totals in 1961 rounded to the nearest thousand.

The farm job family (160,000) experienced an absolute decline from 1941 to 1961. In Ontario, this job family declined by 40.6 per cent - somewhat less than the 42.8 per cent decline in Canada.

The rates of change in each of the 18 job families during each decade and for the 20 year period (1941-1961) are shown in Chart 2. The earliest year for which comparable data are available is 1941 and it is recognized that this is not an ideal base year because of the distortions of World War II.

As in Chart I, there are marked divergences in the rates of change among various job families. Generally, production-oriented job families tended to increase at a faster rate during the decade 1941-1951 than during the more recent period. Examples are : tools- specialized, tools - non-specialized, machines and equipment - non-specialized. In both Ontario and Canada, these job families failed to grow as rapidly as the labour force as a whole during the second decade. Inspection, vehicle operation, sales - considerable knowledge, clerical, and administration and organization job families also displayed lower rates of increase during the 1951-1961 period than during the earlier decade.

The machinery and equipment - specialized job family declined absolutely in Ontario between 1941 and 1951. In the subsequent decade, however, this job family increased at a greater rate than the growth of Ontario labour force. Two other job families experienced net declines during one, or both, of the ten-year time periods shown in Chart 2.

PERCENTAGE CHANGE IN TOTAL LABOUR FORCE AND JOB FAMILIES, ONTARIO AND CANADA, 1941-1951, 1951-1961 AND 1941-1961.

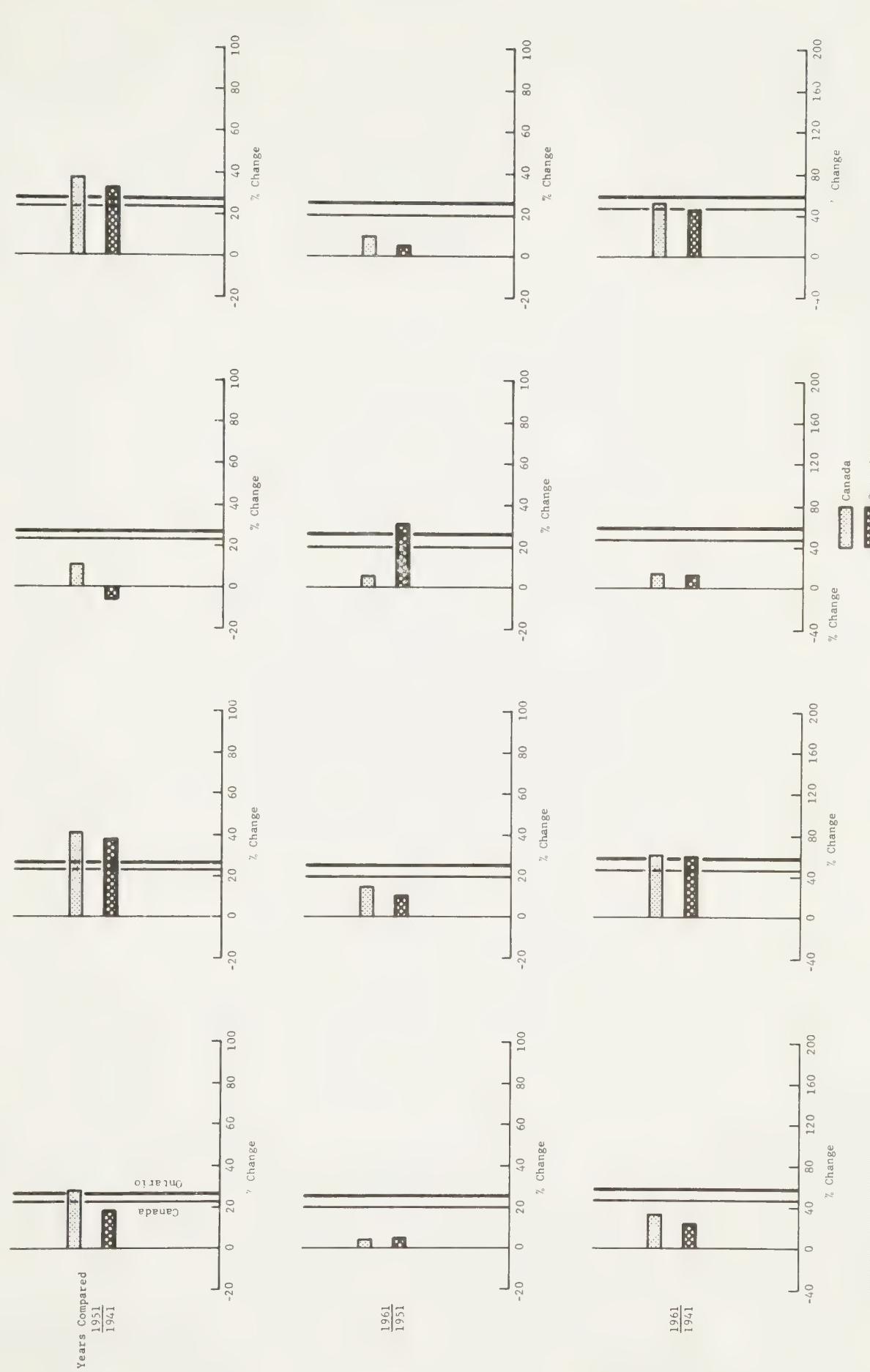
CHART 2

1. TOOLS, SPECIALIZED

2. TOOLS, NON-SPECIALIZED

3. MACHINES & EQUIPMENT, SPECIALIZED

4. MACHINES & EQUIPMENT, NON-SPECIALIZED



Source: See Chart 1.

Canada

Ontario

Note: Vertical lines show % change in total labour force in Canada and Ontario.

CHART 2 (cont'd.)

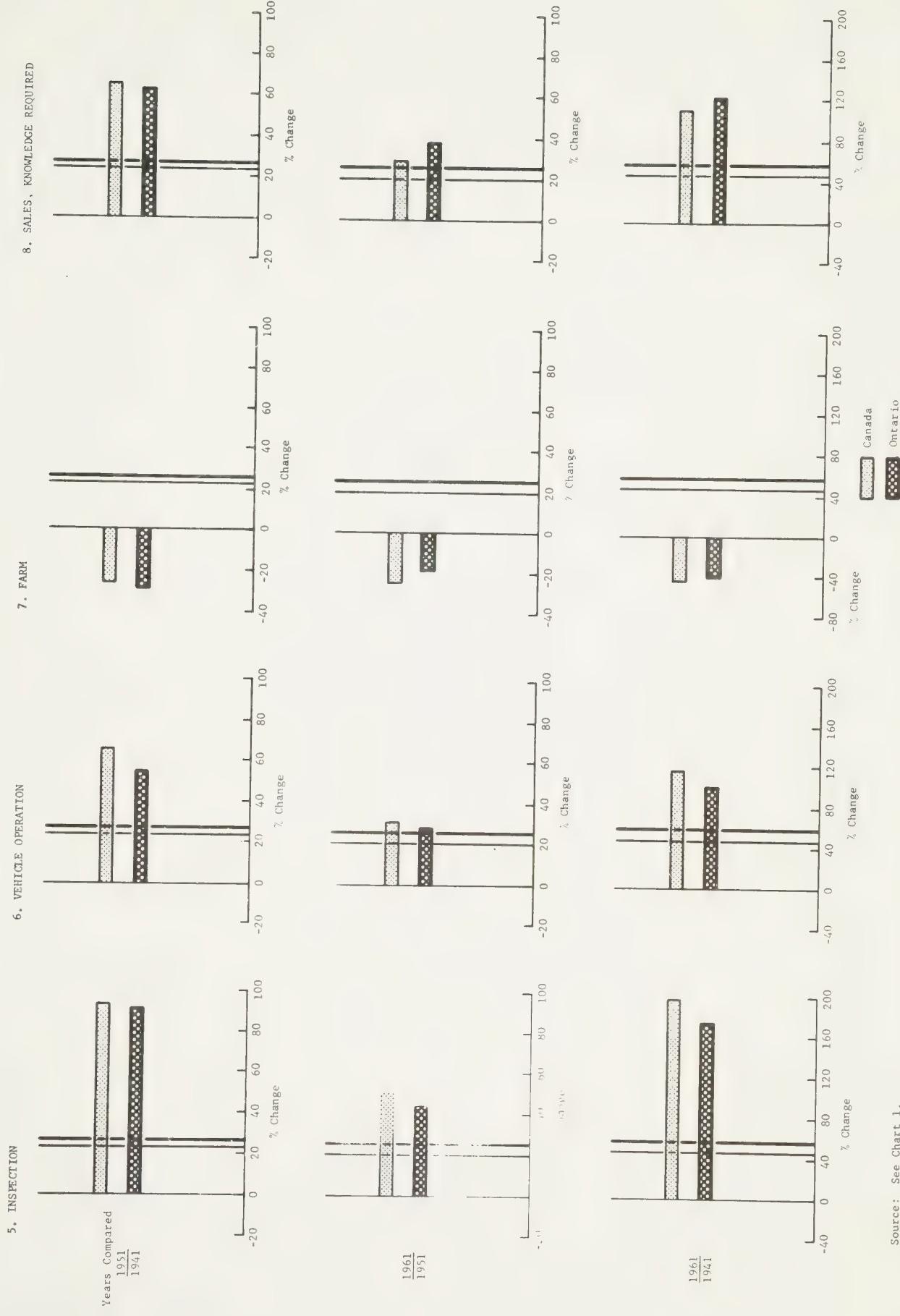
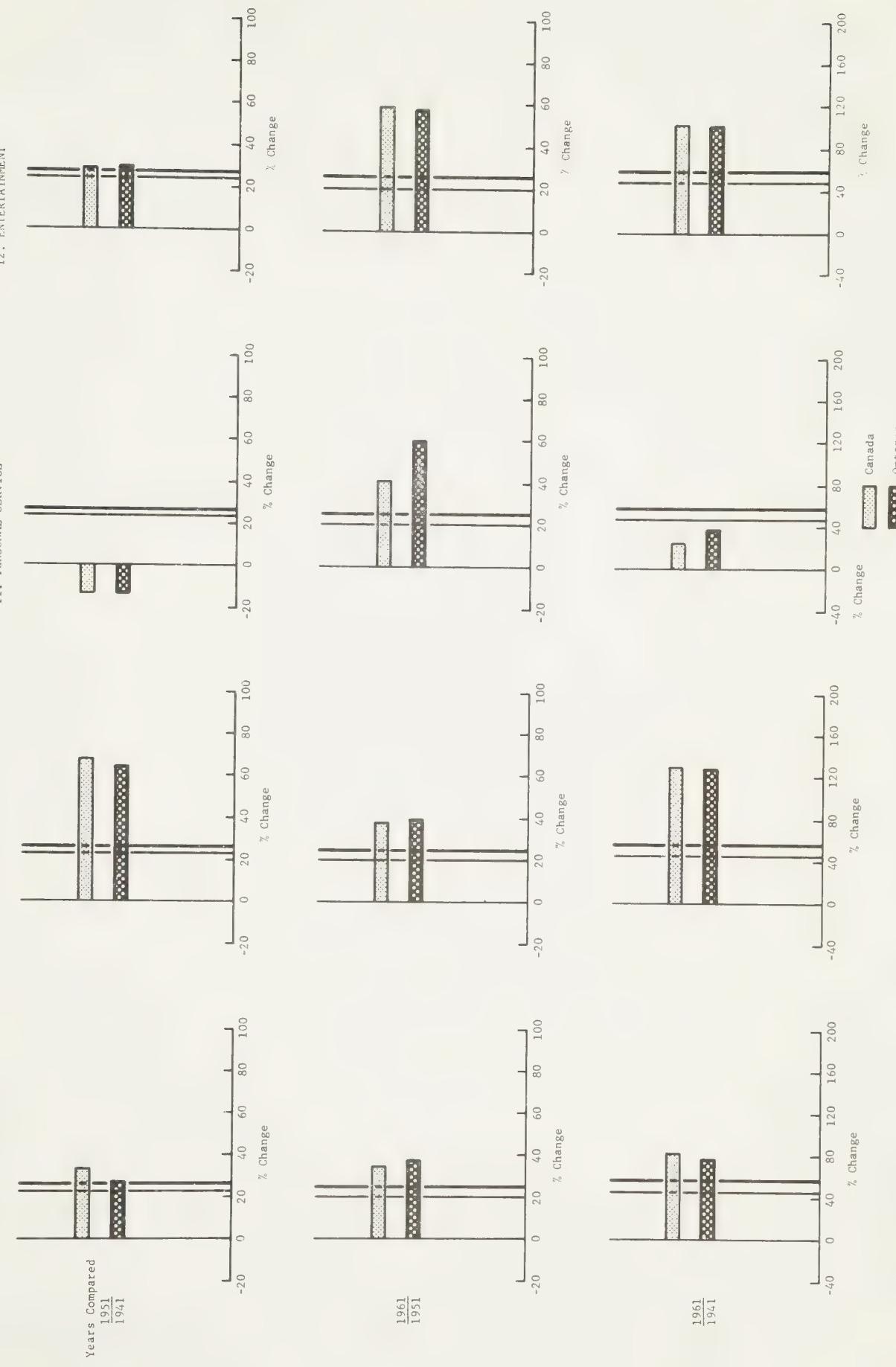


CHART 2 (cont'd.)

9. SALES, KNOWLEDGE NOT REQUIRED



Source: See Chart 1.

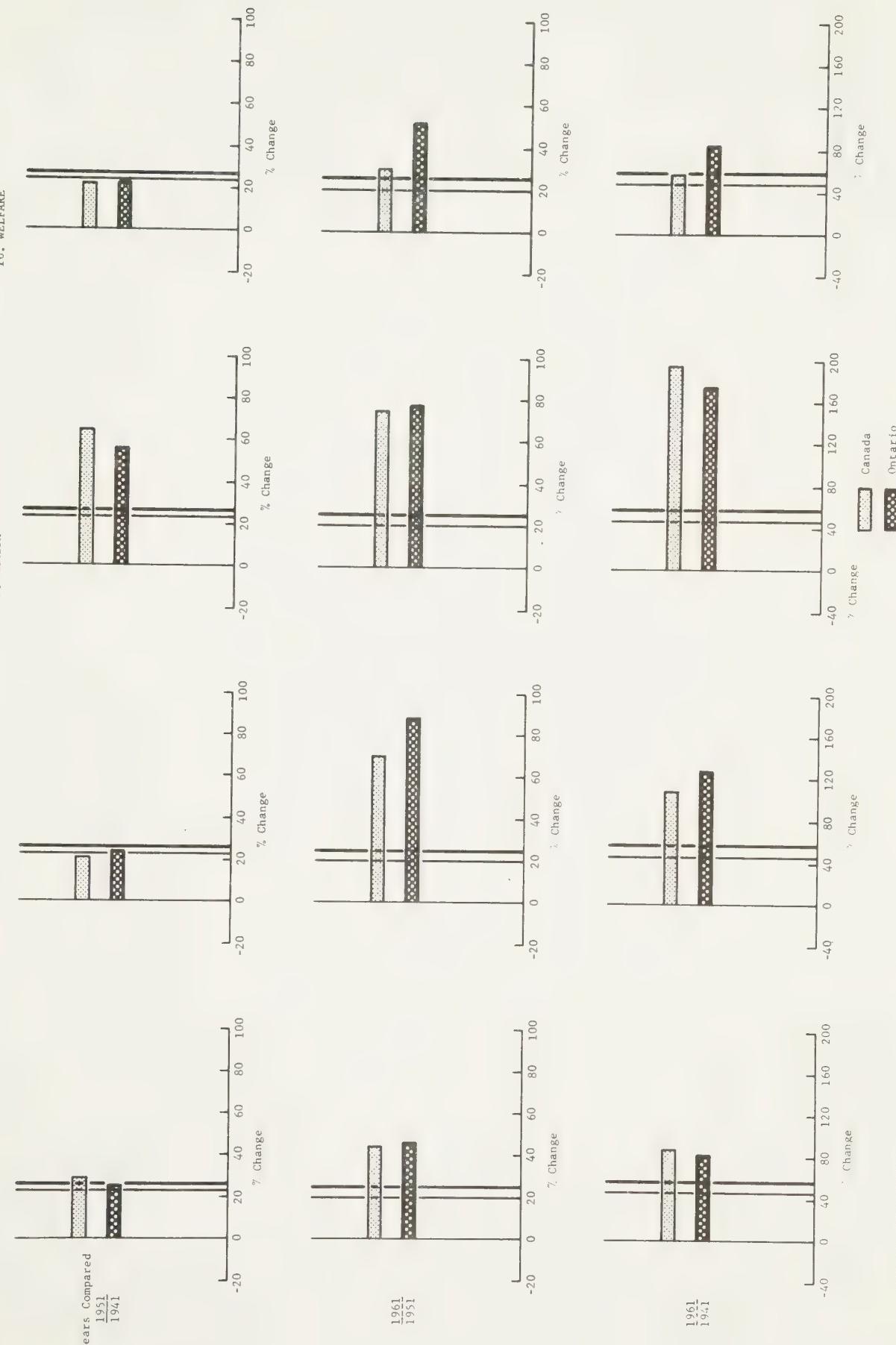
CHART 2 (cont'd.)

13. PROTECTION

14. EDUCATION & TRAINING

15. HEALTH

16. WELFARE

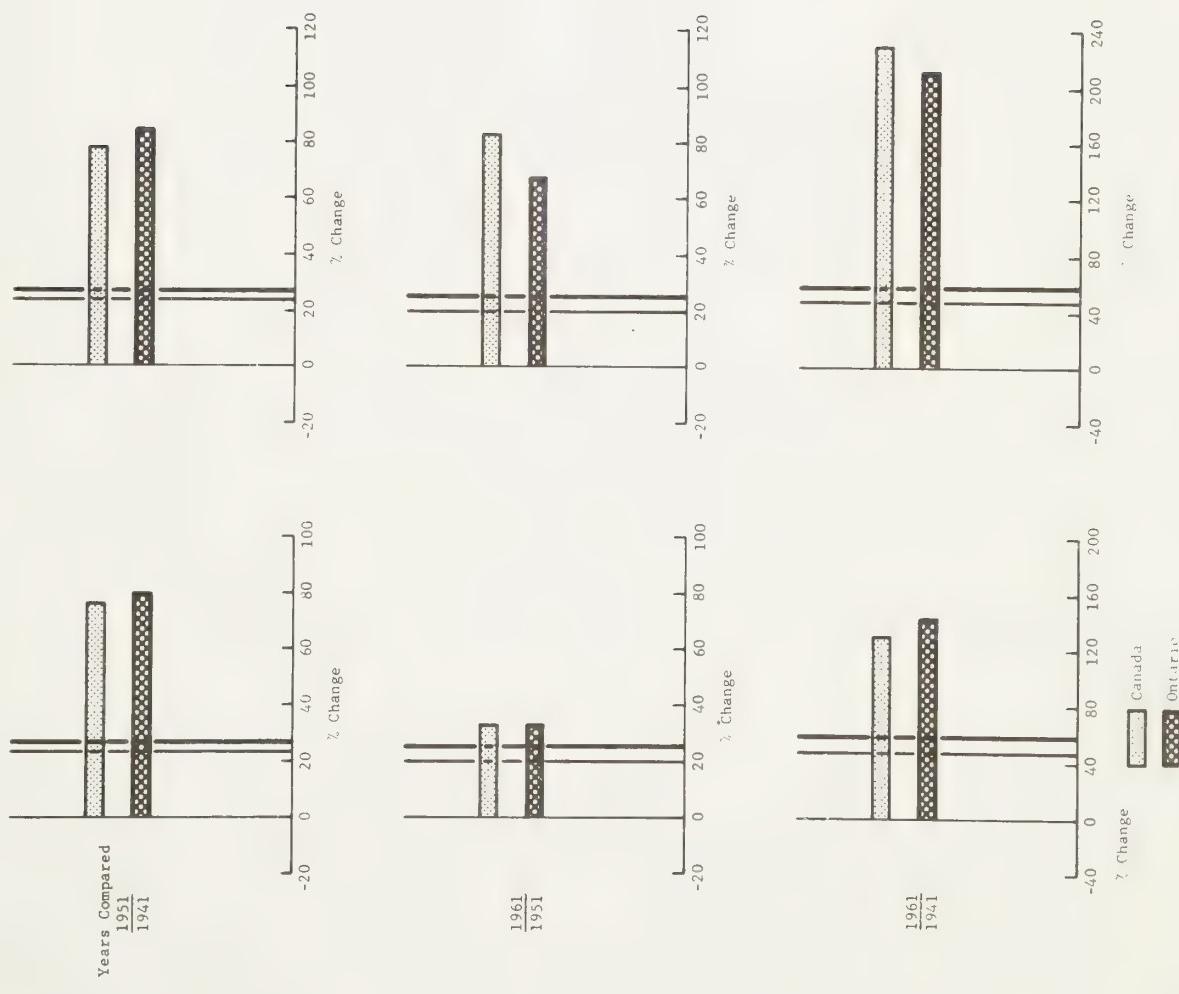


Source: See Chart 1.

CHART 2 (cont'd.)

17. ADMINISTRATION & ORGANIZATION

18. RESEARCH & DESIGN



Source: See Chart 1.

Ontario and Canada had absolute declines in the farm job family. The personal service job family declined in the period 1941-1951, but during the subsequent decade grew about twice as fast as the labour force as a whole. Other job families which grew markedly faster during the more recent decade include entertainment, protection, education, health and welfare.

Finally, a word of caution is in order. The extent to which rapid growth in the first decade can be attributed to a return to a normal civilian economy is impossible to determine and these forces cannot be clearly isolated from the long-term trends.

4. The Relative Importance of Job Families and their Industrial Distribution

The charts in the previous section illustrated the changes which occurred in the job families over the period 1941-1961. Since the job family/industry matrix contains a large number of boxes, the analysis in this section will focus on the key characteristics of the matrix computed for 1961.

Table I⁽¹⁾ shows both the absolute and relative distribution of the Ontario labour force by industry, and industry by job family. The first two columns indicate that the manufacturing group accounted for the largest proportion of the Ontario labour force - 27.9 per cent.

(1) Since data in most of the tables shown are the product of a number of transformations, totals may not add due to rounding.

TABLE 1

ONTARIO LABOUR FORCE BY INDUSTRY AND INDUSTRY BY JOB FAMILY, 1961

Industry	Ontario												Total											
	Agriculture Edu. No.	Forestry Edu. No.	Fishing and Trapping Edu. No.	Mines, Quarries, and Oil Wells Edu. No.	Manufacturing Edu. No.	Construction Edu. No.	Transportation, Communication, and Other Utilities Edu. No.	Trade Edu. No.	Finance, Insurance, and Real Estate Edu. No.	Community, Business, and Personal Services Edu. No.	Public Administration Edu. No.													
Labour Force	168,205	7.4	17,666	0.7	2,108	0.1	47,194	1.0	639,585	27.9	152,995	6.7	193,059	8.5	368,216	16.1	97,866	4.3	446,810	20.3	140,610	6.2	2,285,912	100.0
Tools - Specialized	106	0.1	8,884	50.3	29	1.4	600	1.4	34,129	3.3	16,806	11.0	13,489	7.1	6,197	1.7	137	0.1	15,955	3.4	2,172	1.3	98,701	-
Tools - Non-specialized	829	0.5	2,153	12.2	149	7.1	7,215	17.1	167,835	23.2	86,622	56.6	34,077	17.6	60,913	16.5	3,564	3.7	29,081	6.3	20,180	14.6	392,619	17.2
Machines - Specialized	25	-	350	2.0	1,234	62.8	21,837	51.8	13,943	2.2	7,109	4.7	3,318	1.7	1,036	0.3	32	-	1,876	0.4	2,110	1.5	51,020	-
Machines - Non-specialized	342	0.2	232	1.3	375	17.8	2,022	4.6	172,479	27.0	5,350	3.6	3,022	1.6	14,309	3.9	364	0.4	4,931	1.1	3,965	2.1	206,650	-
Inspection	488	0.3	813	4.6	15	0.7	2,656	6.3	45,995	7.2	5,620	3.5	12,136	6.3	4,350	1.2	407	0.4	2,572	0.5	7,578	5.4	82,637	-
Vehicle Operation	693	0.4	1,077	6.1	22	1.0	2,330	5.5	24,583	3.9	5,948	3.9	48,356	24.9	25,085	8.8	97	0.1	4,532	1.0	6,421	3.1	117,123	-
Farm	158,779	94.6	41	0.2	0	-	1	-	293	-	2	-	26	-	433	0.1	1	-	380	0.1	339	0.2	160,294	-
Sales - Knowledge Required	66	-	36	0.2	0	-	170	0.6	20,423	3.2	433	0.3	2,596	1.3	13,639	3.7	18,935	19.4	1,623	0.3	693	0.5	58,416	2
Sales - Knowledge Not Required	331	0.2	15	0.1	0	-	73	0.2	23,475	3.7	739	0.5	1,055	0.5	93,809	25.5	15	0.2	3,859	0.8	91	0.1	122,590	-
Clerical	606	0.4	660	3.7	22	1.0	2,081	4.9	62,292	12.9	6,379	4.2	53,474	27.6	62,278	16.9	55,580	56.9	37,136	12.3	48,167	34.3	368,876	16.1
Personal Service	4,388	2.6	817	4.6	2	0.1	236	0.6	3,683	0.6	336	0.2	3,291	1.7	4,973	1.4	1,727	1.0	123,637	28.2	5,271	3.8	160,402	1.0
Hotels and Restaurants	26	-	0	-	0	-	2	-	1,809	0.3	3	-	636	0.3	360	0.1	24	-	9,087	2.0	215	0.2	12,261	-
Protection	75	-	239	1.4	11	0.5	340	0.8	4,491	0.7	688	0.3	1,662	0.8	738	0.2	281	0.3	3,510	0.9	18,567	13.2	30,622	-
Education and Training	0	-	0	-	0	-	0	-	93	-	0	-	35	-	69	-	15	-	39,708	12.9	740	0.5	60,883	1.7
Health	580	0.3	3	-	1	0.1	131	0.3	1,614	0.2	22	-	188	0.1	2,888	0.8	124	0.1	76,165	16.5	2,275	1.6	85,401	-
Welfare	2	-	0	-	0	-	0	-	24	-	0	-	0	-	0	-	0	-	12,134	2.6	1,277	0.9	13,437	-
Administration and Organization	747	0.5	1,082	9.5	129	6.1	1,122	2.6	43,396	6.0	15,611	10.2	12,063	6.2	75,106	20.4	15,652	15.8	38,232	8.2	15,789	11.2	219,320	-
Research and Design	121	0.1	664	3.8	29	1.4	1,379	3.3	18,043	2.0	1,508	1.0	4,210	1.2	1,752	0.5	774	0.8	7,510	1.6	3,660	5.5	43,669	1

Community, business and personal service industries with 20.3 per cent of the total labour force was the second most important industry group. With the exception of the trade group, which had 16.1 per cent of the labour force, each of the other industry groups accounted for less than ten per cent of the Ontario labour force which in 1961 totalled 2,286,900 persons.

An examination of the individual job family totals reveals that in Ontario the single most important job family was the tools - non-specialized group. This category accounted for 17.2 per cent of the labour force. The clerical job family was a slightly lower proportion - 16.1 per cent. The other job families, taken individually, accounted for less than ten per cent of the labour force. Some job families contain only a very small fraction of the labour force. For example, the entertainment, protection, welfare, research and design job families taken together accounted for slightly more than four per cent of the labour force.

Tables 2 and 3 present the job.family/industry matrix in the same manner as Table 1 except that Table 2 presents the breakdown for the 1,611,000 males in the Ontario labour force. Table 3 distributes the 676,000 female members of the Ontario labour force.

In terms of the male-female distribution of the labour force, the patterns tend to differ according to the industry group. While manufacturing accounts for the largest proportion of the male labour

TABLE 7

CENSUS OF LABOUR FORCE, WALES, BY INDUSTRY AND INDUSTRY BY JOB FAMILY, 1961

Job Family	Industry										Total	
	Manufacturing	Fishing and Trapping	Minerals, Quarries, and Oil Mills	Manufacturing	Construction	Transportation, Communication, and Other Utilities	Trade	Finance, Insurance, and Real Estate	Community, Business, and Personal Service	Public Administration		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Labour Force	144,261	1.0	17,039	1.2	2,333	1.1	41,202	2.8	509,867	31.1	148,476	9.2
Tools - Specialized	93	1	8,877	51.1	24	-	599	1.6	27,063	5.6	16,797	11.3
Tools - Non-specialized	779	-	2,068	12.0	108	5.7	7,182	17.6	137,984	27.6	89,391	58.2
Machines - Specialized	25	-	268	2.3	1,312	64.6	21,831	53.0	11,915	2.6	7,109	4.8
Machines - Non-specialized	351	-	228	1.9	372	18.3	2,008	4.9	116,754	23.3	5,488	3.7
Inspection	288	-	408	2.8	5	0.7	2,652	6.6	41,264	8.3	5,418	3.7
Vehicle Operation	665	-	1,075	-	22	1	8,330	5.7	26,453	4.9	5,939	4.0
Farm	136,406	-	17	0.2	0	-	1	-	235	0.1	2	-
Sales - Knowledge Required	51	-	32	0.2	1	-	169	0.6	19,068	3.8	419	0.3
Sales - Knowledge Not Required	217	-	1	0.1	0	-	65	0.2	19,610	3.9	668	0.4
Clerical	120	0.1	46	2.7	9	0.1	1,289	3.1	35,103	7.0	2,657	1.8
Personal Service	4,068	-	0	-	0	-	170	0.6	2,037	0.6	263	0.2
Entertainment	24	-	0	-	0	-	2	-	1,492	0.3	2	-
Protection	75	-	35	1.5	1	0.1	339	0.8	6,452	0.9	485	0.3
Education and Training	-	-	0	-	0	-	76	-	0	-	46	-
Health	547	0.4	2	-	1	0.1	116	0.3	718	0.1	2	-
Welfare	2	-	0	-	0	-	0	-	0	-	0	-
Administration and Organization	186	0.5	1,772	9.8	127	0.7	1,101	2.7	60,837	8.1	15,324	10.3
Research and Design	116	0.1	194	1.1	29	1	1,370	3.3	17,669	3.5	1,501	1.0

TABLE 3

ONTARIO LABOUR FORCE, FAMILIES, BY INDUSTRY, AND INDUSTRY BY JOB FAMILY, 1961

Job Family	Industry												Total											
	Agriculture No. %	Forestry No. %	Fishing and Trapping No. %	Mines, Quarries, and Oil Wells No. %	Manufacturing No. %	Construction and Other Utilities No. %	Transportation, Communication, and Other Services No. %	Trade No. %	Finance, Insurance, and Personal Service No. %	Community, Business, and Personal Service Real Estate No. %	Public Administration No. %													
Labour Force	23,564	3.5	627	0.1	75	-	591	0.1	137,738	20.4	4,518	0.7	29,536	4.4	119,940	17.8	46,869	6.9	273,608	40.5	37,780	5.6	675,603	100.0
Tools - Specialized	11	-	7	1.1	0	-	1	0.1	7,086	5.1	9	0.2	41	0.1	2,714	2.2	23	-	10,758	2.9	139	0.4	20,700	-
Tools - Non-specialized	101	0.6	106	17.0	43	57.3	33	3.2	9,852	7.1	231	5.1	429	1.5	3,680	2.8	1,100	2.4	8,104	2.3	944	2.5	22,512	1.1
Machines - Specialized	0	-	4	0.6	12	16.0	6	0.6	2,027	1.5	0	-	24	0.1	103	0.1	1	-	215	0.1	37	0.1	2,431	-
Machines - Non-specialized	191	0.8	4	0.6	3	4.0	16	1.4	55,725	60.5	52	1.2	160	0.5	3,643	2.9	0	-	335	0.1	70	0.2	59,976	A
Inspection	222	0.9	4	0.6	0	-	24	2.5	4,631	3.4	9	0.2	271	0.9	481	0.6	22	-	530	0.2	444	1.2	6,838	-
Vehicle Operation	0	-	2	0.3	0	-	0	-	111	0.1	9	0.2	228	0.8	291	0.2	26	0.1	230	0.1	41	0.1	946	0..
Farm	22,372	93.4	5	0.8	0	-	0	-	38	-	0	-	-	-	98	0.1	0	-	12	-	1	-	22,525	J
Sales - Knowledge Not Required	15	0.1	0	-	0	-	1	0.1	1,755	1.0	16	0.3	86	0.3	2,112	1.8	1,581	3.0	421	0.2	60	0.2	5,665	0.4
Clerical	486	2.0	176	28.1	13	17.3	792	79.9	47,189	34.3	3,722	82.4	15,370	85.9	46,583	37.2	42,017	89.7	44,111	16.1	30,234	80.0	238,694	35.3
Personal Service	320	1.4	299	47.7	2	2.7	66	6.7	1,648	1.2	93	2.1	984	3.3	3,764	3.1	896	1.9	96,988	35.4	1,112	2.9	106,169	15.7
Entertainment	2	-	0	-	0	-	0	-	317	0.2	1	-	206	0.7	111	0.1	6	-	3,748	1.4	67	0.2	4,458	0.7
Petroleum	1	-	4	0.6	0	-	1	0.1	39	-	2	-	17	0.1	59	0.1	18	-	189	0.1	544	1.4	875	0.1
Education and Training	0	-	0	-	0	-	0	-	19	-	0	-	9	-	32	-	2	-	38,033	13.9	283	0.7	38,378	5.7
Health	33	0.2	1	0.2	0	-	15	1.5	896	0.6	20	0.4	125	0.4	395	0.3	76	0.2	36,499	20.6	1,300	3.5	39,368	8.8
Welfare	0	-	0	-	0	-	0	-	6	-	0	-	0	-	0	-	0	-	4,010	1.5	459	1.2	4,475	0.7
Administration and Organization	62	0.3	10	1.6	2	2.7	21	2.2	2,558	1.9	277	6.1	1,217	4.4	8,986	7.5	949	2.0	8,259	3.0	1,283	3.7	23,823	3.5
Research and Design	3	-	3	0.5	0	-	9	0.9	375	0.3	7	0.2	158	0.5	151	0.1	102	0.2	790	0.3	603	1.6	2,202	0.3

force in Ontario - 31.1 per cent or some 501,000 persons - females had their highest proportion - 40.5 percent or about 274,000 persons - in the community, business and personal service industries.

Females tended to be more concentrated in selected industries than males. In 1961 the three largest groups, community, business and personal service industries, manufacturing and trade accounted for 78.7 per cent of the female labour force. In the case of males, the three most important industries, manufacturing, trade, community, business and personal service industries accounted for a significantly smaller proportion of the labour force - 58.4 per cent.

Marked differences in the sex distribution of job families are also evident from the data. While men were concentrated in the tools - non-specialized, administration and organization, and machines - non-specialized job families, the female labour force was concentrated in the clerical, personal service, and machines - non-specialized job families.

As was the case in the industrial distribution of the labour force, females were less evenly distributed than males by job family. The three most important male job families referred to above accounted for 44.1 per cent of the labour force while the three most important female job families contained 59.9 per cent.

The data in Table 2 for the male labour force, when considered in terms of each of the three most important industries, shows that for

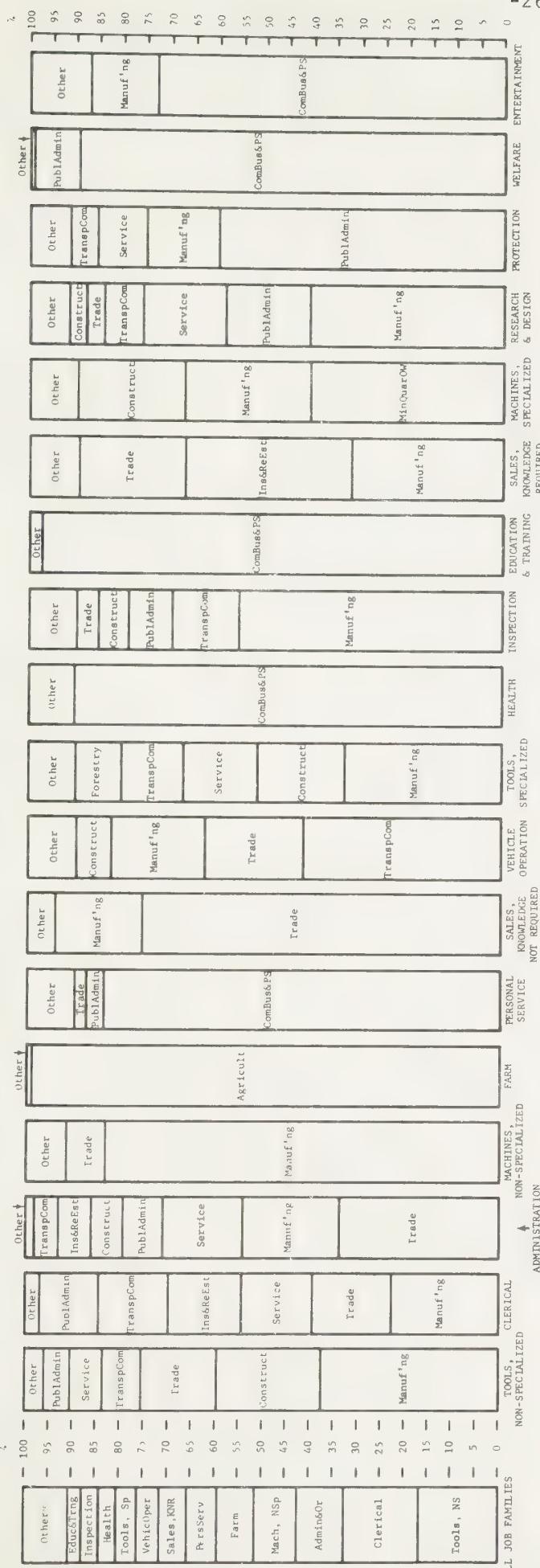
manufacturing, the tools - non-specialized job family accounted for 27.6 per cent of all job families in that industry. With respect to trade, the administrative and organization job family accounted for just over one-quarter of the labour force within the industry. In terms of product knowledge requirements, it is interesting to note that a significantly smaller proportion - less than five per cent - of those in trade industries are classified as being in the sales - considerable knowledge required category. In the community, business and personal service industry group, the personal service job family was the most important in terms of size.

Analysis of female job families by industry indicates that in the largest industry - community, business, and personal service - more than one-third of the female labour force in that industry, or about 97,000 persons, were in the personal service job family. In the manufacturing industries, slightly more than two-fifths of the labour force was in the machines - non-specialized job family. The sales - little knowledge required job family was the most prevalent family for females in the trade industry groups.

Charts 3, 4 and 5 rank total, male, and female Ontario labour force first by job families, and then from left to right, in descending order of job family size by the industry distribution of the job family.

While reference has already been made to the dominant job

CHART 3
PERCENTAGE DISTRIBUTION OF ONTARIO LABOUR FORCE JOB FAMILIES, 1961

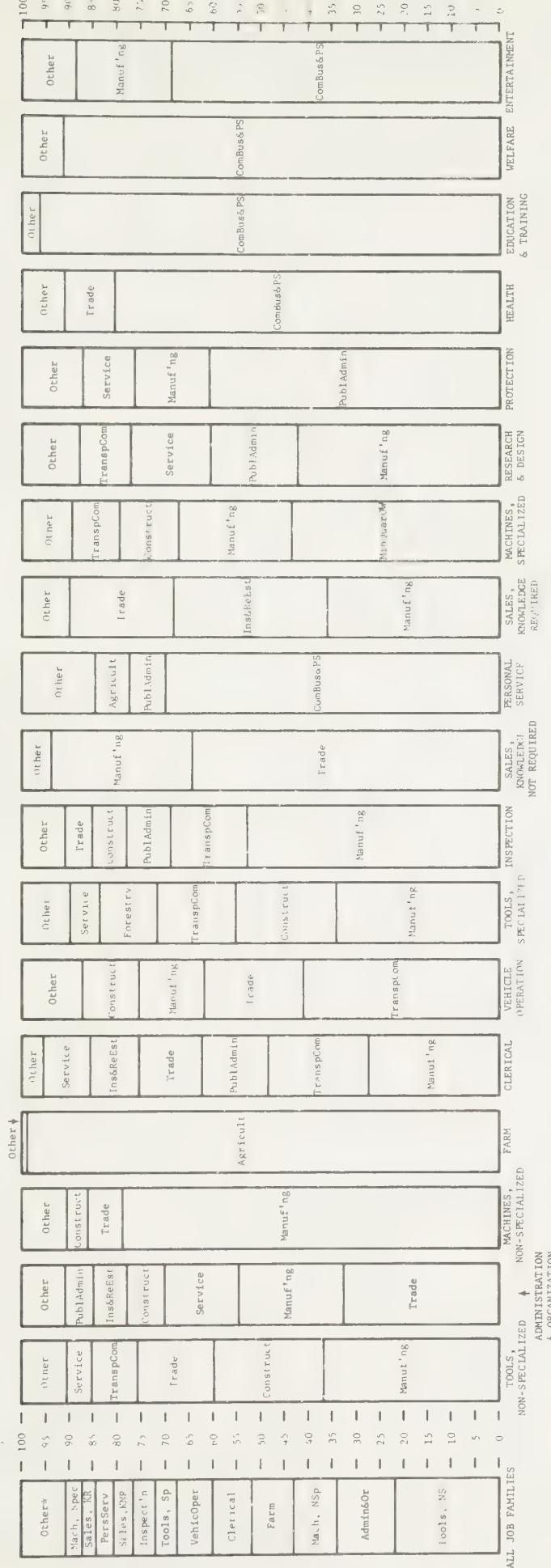


"Other"	Sales, Knowledge Required	2.6
	Machines, Specialized	2.3
	Research & Design	1.9
	Protection	1.3
	Welfare	0.6
	Entertainment	0.5

AdminOr	= Administration & Organization
Agricultr	= Agriculture
ComBus&S	= Community, Business & Personal Service
Construct	= Construction
Educating	= Education & Training
Inspectn	= Inspection
Industrie	= Insurance & Real Estate
Mach., NSP	= Machines, Non-specialized Manufacturing
MinQuartr	= Mines, Quarries & Oil Wells
Perservry	= Personal Service
Publadmin	= Public Administration
Sales KOR	= Sales, Knowledge Not Required
Tools, NS	= Tools, Non-Specialized
Tools, Sp	= Tools, Specialized
TransCom	= Transportation, Communication, etc.
Vehicoper	= Vehicle Operation

CHART 4

PERCENTAGE DISTRIBUTION OF ONTARIO LABOUR FORCE JOB FAMILIES, MALES, 1961



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* "Other" includes the following job families: Research & Design..... 2.6

Protection..... 2.6

Health..... 1.8

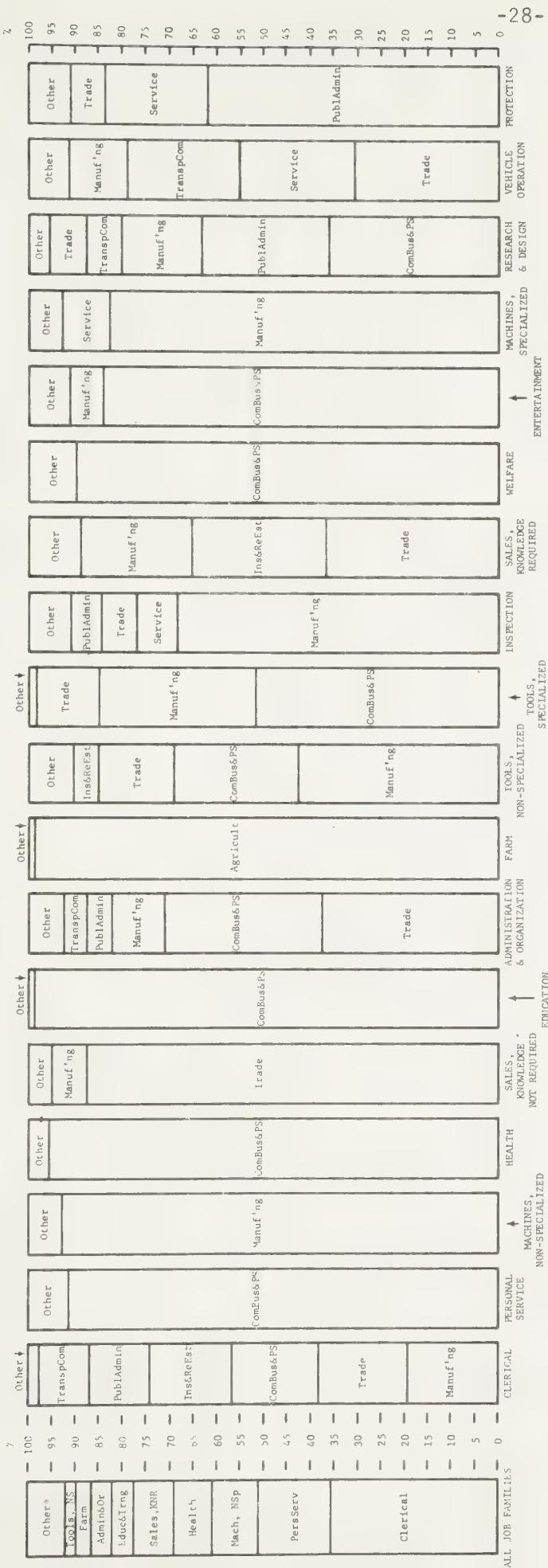
Education & Training..... 1.6

Welfare..... 1.4

Entertainment..... 0.5

Administrator = Administration & Organization
 Agricultural = Agriculture, Business & Personal Service
 Construction = Construction
 Inspector = Inspection
 Inspector = Insurance & Real Estate
 Mach., NSP = Machines, Non-Specialized
 Mach., Sp = Machines, Specialized
 Manufacturing = Manufacturing
 MinQuarRow = Mines, Quarries & Oil Wells
 PerServ = Personal Service
 PublAdmin = Public Administration
 Sales, KNR = Sales, Knowledge Not Required
 Sales, KR = Sales, Knowledge Required
 Tools, NS = Tools, Non-Specialized
 Tools, Sp = Tools, Specialized
 TranspCom = Transportation, Communication, etc.
 Vehicle = Vehicle Operation

CHART 5
PERCENTAGE DISTRIBUTION OF ONTARIO LABOUR FORCE JOB FAMILIES, FEMALES, 1961



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*"Other" includes the following job families: Tools Specialized..... 3.1
Sales, Knowledge Required..... 1.0
Inspection..... 0.8
Welfare..... 0.7
Entertainment..... 0.6
Machines, Specialized..... 0.4
Research & Design..... 0.3
Vehicle Operation & Protection... 0.1

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Admin&Or = Administration & Organization
Agricul = Agriculture
ConBus&PS = Community, Business & Personal Service
Educ&Trng = Education & Training
In&Reat = Insurance & Real Estate
Mach, NSP = Machines, Non-Specialized
Manuf'ng = Manufacturing
PersServ = Personal Service
PublAdmin = Public Administration
Sales, KNR = Sales, Knowledge Required
Tools, NS = Tools, Non-Specialized
Transp/Com = Transportation, Communication, etc.

families, the footnote to Chart 3 shows that there are a number of relatively small job families. In this "other" group of job families each individual job family accounts for less than three per cent of the total, or fewer than 59,000 persons in any one job family in this category. The welfare and entertainment groups were the least significant in terms of size. Both taken together account for just over one per cent of the total labour force.

If only those job families which taken together constitute more than 50 per cent of the labour force are considered (tools - non-specialized, clerical, administration and organization, and machines - non-specialized), it is clear that manufacturing, which accounts for about 639,000 persons in all, is the largest sector of employment of three of the four most important job families. Within these same four job families, trade appears as the most important industry for the administration and organization job family and ranks second in two of the three other job families.

Charts 4 and 5 show the male and female distribution of the labour force by job family and industry. In the case of males, four job families, as was true for the total labour force, account for slightly more than one-half of the total male labour force. The four job families are not, however, the same as was the case for the total labour force. Tools - non-specialized remained the single most important job family since this job family is dominated by males and clerical in the total labour force was displaced by administration and

organization. Machines - non-specialized ranked third, while the farm occupations ranked fourth in order of importance.

The female distribution of the labour force by job families reveals a marked difference from that of males in the relative importance of certain job families. The single most important job family was clerical. Just over 35 per cent of all females in the labour force or about 239,000 persons were in this category. When combined with the personal service job family, which was next in importance, these two job families totalled some 345,000 persons and accounted for slightly more than 50 per cent of the total female labour force.

Other than the machines - non-specialized job family, the four most important female job families are quite different from the male. Another difference is that the female labour force tends to be concentrated in fewer job families. Two job families account for slightly more than 50 per cent of the female labour force; for males, four job families must be considered before one-half of the labour force has been allocated by job family. Put another way, for females, nine job families must be considered to attain a 90 per cent distribution of the total. In the case of males, twelve families need to be considered in order to attain the same level of aggregation.

5. Projected Changes in Job Families, 1971-1991

Thus far, the analysis has concentrated on the changes which have occurred in job families during the two decades 1941-1961. Recognizing that there are only three observations on which to base a

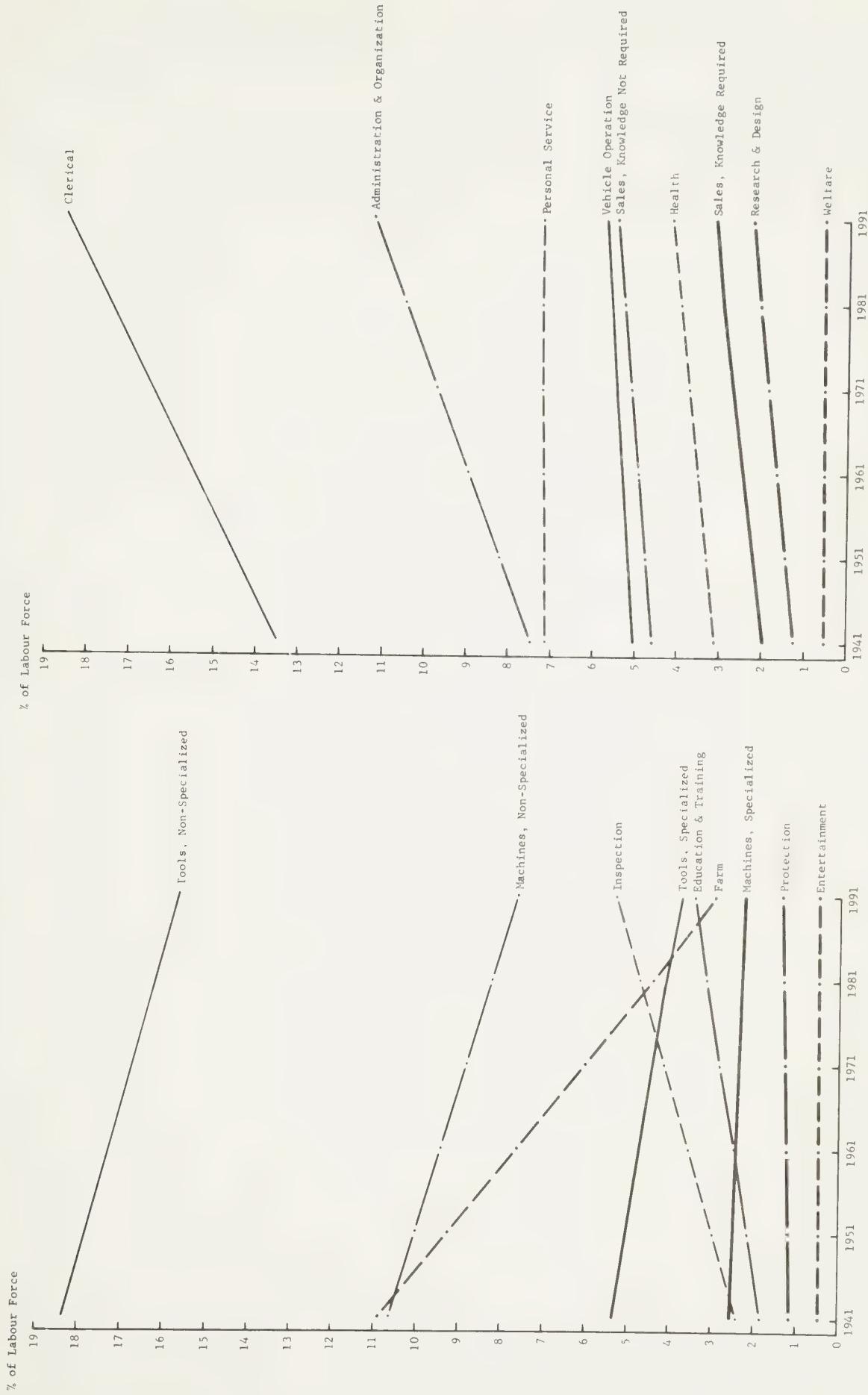
projection, it was still felt that some attempt should be made to assess the probable future distribution of the labour force by job families.

The procedure used to project the changes in job families was to plot the proportion that each male and female job family was to the respective male and female labour force totals for each of the three base years.⁽¹⁾ A trend line was then fitted to these points and projections of proportions were made for each job family for 1971, 1981, and 1991. The trend lines were subsequently adjusted to ensure that the total of the proportions of all job families did not exceed 100 per cent.

The trend line projections to 1991 of the Ontario job families are shown in Chart 6. Projections of job families for males and females are found in Charts 7 and 8, respectively. It is evident from Chart 6 that marked changes are anticipated in all but a few job families. Despite the qualifications which have already been made concerning the inadequate time series, it seems evident that in terms of numbers the clerical job family will rank as the single most important job family. Although tools - non-specialized is expected to remain second in importance, it will continue to decline as a proportion of the total labour force. The administration

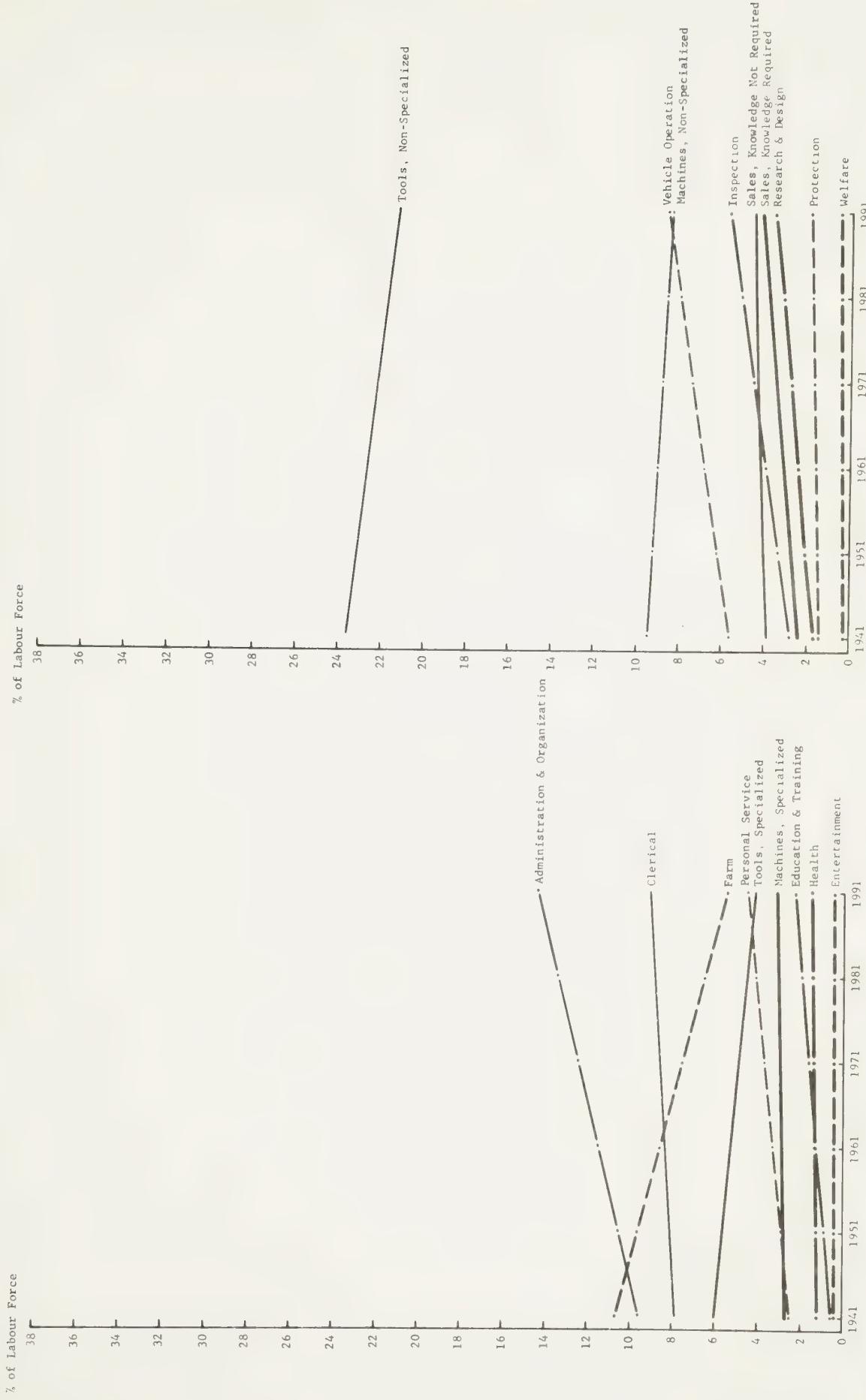
(1) The Canadian male-female job family ratios were applied to Ontario job family totals.

CHART 6
TREND LINE PROJECTIONS TO 1991 OF TOTAL ONTARIO JOB FAMILIES



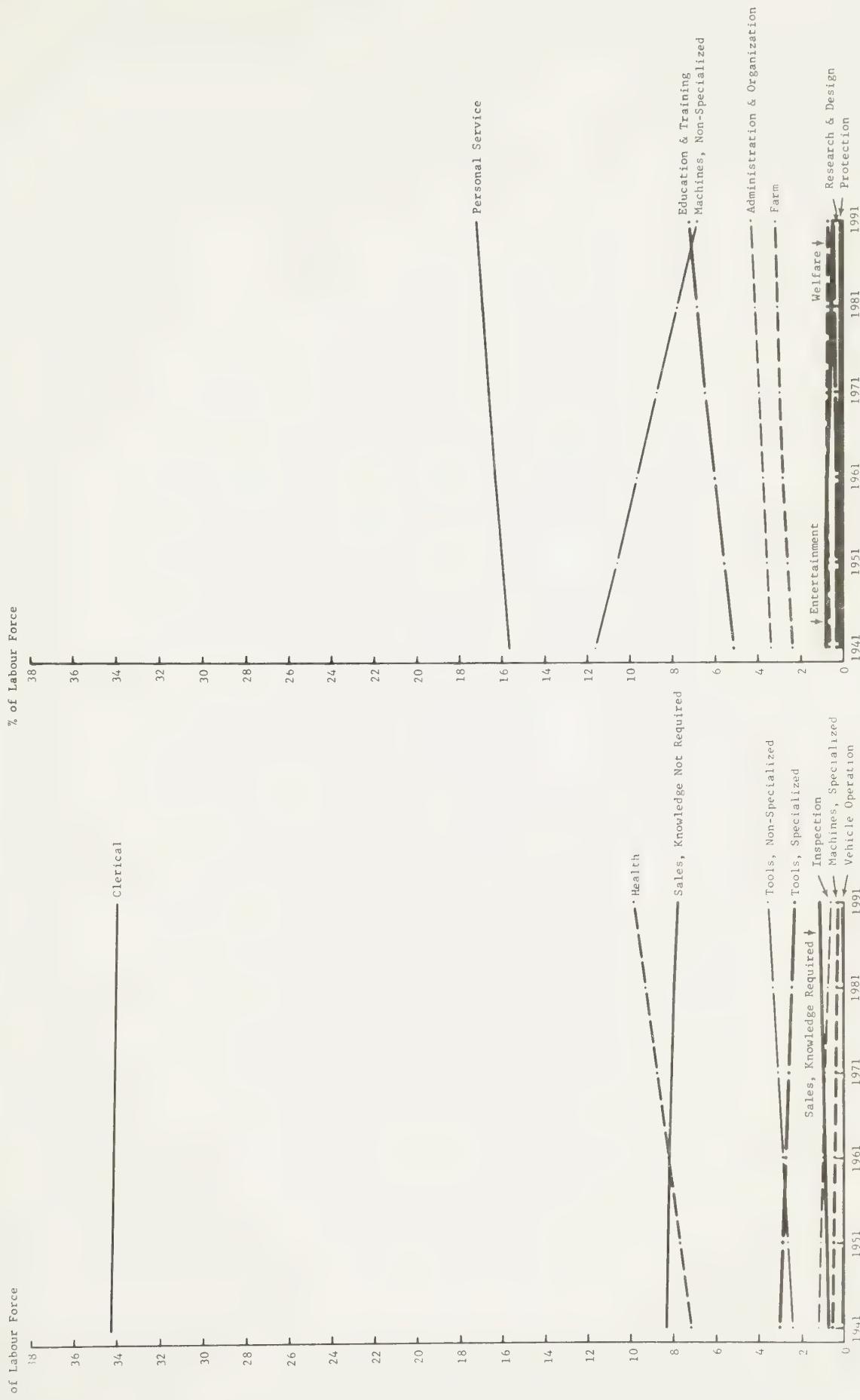
Source: Data for 1941, 1951 and 1961 derived from J.G. Scoville, The Job Content of the Canadian Economy, 1941, 1951 and 1961, DBS, Special Labour Force Studies No. 3.

CHART 7
TREND LINE PROJECTIONS TO 1991 OF ONTARIO JOB FAMILIES, MALES



Source: See Chart 6.

CHART 8
TREND LINE PROJECTIONS TO 1991 OF ONTARIO JOB FAMILIES, FEMALES



Source: See Chart 6.

and organization job family is expected to increase its share of the total labour force. Towards the end of the projection period this job family will rise to the third rank in order of importance.

Chart 6 indicates that a number of job families will become proportionately less important in the future. Included in this group and ranked by size at the end of the projection period are: tools - non-specialized; machines and equipment - non-specialized; tools - specialized; farm; and machines and equipment - specialized. The entertainment, protection, personal service, and welfare job families do not exhibit any significant changes in their respective proportions of the labour force. The other job families shown in Chart 6 but not already referred to are expected to grow as a proportion of the labour force. Even though their proportion may almost double in some instances, in terms of numbers, any one of these job families will not form a significant proportion of the labour force.

Charts 7 and 8 show the projected proportions of the male and female labour force in each of the 18 job families. A comparison of these two charts with the total for both males and females illustrates the extent to which job families in Chart 6 are "pulled" by the male-female weighting in a particular job family. For example, the males in the clerical job family account for less than ten per cent of male labour force, yet because the proportion of female labour force is so great - some 34 per cent at the end of the

projection period - this family is shown to be the most important in the total labour force after 1971.

The final step in determining the probable future numbers of persons in each of the job families was to apply the individual male and female trend line projections of job family proportions to the "Most Probable" labour force projection.(1) The results of this computation are shown in Table 4.

6. Educational Achievement of the Ontario Labour Force

The methodology used to determine educational achievement levels was outlined in section 2. It bears repeating here that any conclusions drawn from the data presented should be tempered by the assumptions made. In essence, the 1961 census figures have been adjusted in such a manner so as to present a moving picture from a single snapshot. It is seen in Table 5 below that Canadian educational achievement levels have been moving higher, although marked differences remain in attainment levels as between males and females.

(1) Ontario Labour Force Projections, 1968-1991, Economic Planning Branch, Policy Planning Division, Department of Treasury and Economics, October, 1968.

TABLE 4

ONTARIO LABOUR FORCE BY JOB FAMILY, 1961, 1951, AND 1951
PROJECTED 1971, 1981, AND 1991

Job Family	1961			1951			1951		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Tools - Specialized	68,700	8,100	76,800	69,700	13,100	82,800	87,100	18,300	105,400
Tools - Non-specialized	250,500	5,800	256,300	341,600	11,300	352,900	371,100	18,100	390,600
Machinery - Specialized	41,180	2,400	43,580	38,400	2,500	40,900	31,400	2,000	53,600
Machinery - Non-specialized	101,790	44,600	146,390	135,900	61,100	197,000	142,600	44,100	200,700
Transportation	28,700	3,700	32,400	23,200	3,200	26,400	22,900	3,600	26,500
Vehicle Operation	58,800	100	58,900	71,000	600	91,600	118,800	900	117,700
Farm	265,400	4,900	270,300	188,800	7,700	196,500	161,100	19,400	160,300
Sales - Knowledge Required	21,400	1,200	22,600	19,800	3,000	41,800	33,700	5,300	59,000
Sales - Knowledge Not Required	46,400	24,000	70,400	52,200	26,200	78,400	55,200	13,000	83,400
Clerical	87,200	73,400	160,600	115,800	149,100	264,900	162,900	726,900	270,800
Personal Service	25,700	90,100	115,800	33,100	66,800	100,700	54,000	107,100	161,100
Entertainment	3,400	1,000	4,400	4,200	1,000	5,200	7,000	4,000	10,000
Protection	16,400	1,000	16,400	20,400	20,400	20,900	25,500	700	30,600
Education and Training	7,800	18,600	26,400	10,400	22,100	32,500	20,900	40,300	61,200
Health	11,100	11,700	22,800	19,900	30,000	49,900	25,700	59,700	84,900
Welfare	4,500	2,800	7,300	3,300	3,200	6,800	8,000	4,000	12,000
Administration and Organization	84,000	7,100	91,100	148,300	15,400	163,300	194,400	23,600	219,400
Research and Design	13,700	600	14,300	24,800	1,300	26,300	41,700	2,400	44,100
Total	1,138,900	310,500	1,449,400	1,406,100	631,600	1,837,500	1,439,000	640,000	2,299,000

	1971			1981			1991		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Tools - Specialized	99,600	25,100	125,100	110,200	30,800	141,000	137,900	34,100	152,300
Tools - Non-specialized	449,200	36,500	485,700	528,700	40,600	569,300	585,300	48,700	644,000
Machinery - Specialized	30,100	10,000	40,100	51,100	12,000	63,100	81,400	7,900	84,300
Machinery - Non-specialized	174,800	63,100	238,900	200,700	49,700	249,700	237,200	100,900	337,200
Inspection	105,700	8,900	114,600	137,700	9,800	161,500	165,700	11,500	177,200
Vehicle Operation	150,400	1,000	151,400	191,800	1,200	192,000	224,600	1,400	226,000
Farm	164,100	21,900	186,000	184,700	38,100	222,800	184,600	44,000	232,600
Sales - Knowledge Required	73,200	9,800	83,000	93,200	12,500	107,000	112,300	17,200	129,500
Sales - Knowledge Not Required	87,400	77,700	167,100	105,800	98,400	206,200	123,600	114,600	238,200
Clerical	183,000	377,400	552,400	219,700	319,500	644,200	264,000	488,400	752,400
Personal Service	67,000	67,100	134,100	91,200	9,200	100,400	105,900	24,600	130,500
Entertainment	10,200	5,900	16,100	12,300	7,400	19,700	14,000	8,100	22,000
Protection	36,600	1,000	39,600	46,700	1,200	47,900	53,400	1,500	54,800
Education and Training	33,700	6,200	40,000	42,400	2,200	44,600	54,900	1,200	60,200
Health	32,500	92,300	125,000	39,300	118,100	157,400	47,700	140,600	188,100
Welfare	10,200	6,900	17,100	11,300	8,600	20,900	14,000	8,300	22,300
Administration and Organization	252,150	39,300	291,400	314,800	50,400	365,200	367,900	60,200	428,100
Research and Design	50,390	2,900	52,200	78,200	6,200	81,400	92,700	8,500	101,200
Total	2,032,600	983,700	3,016,300	2,459,200	1,230,000	3,685,200	2,808,100	1,432,200	4,240,100

INDEX: 1941, 1951, and 1991 derived from J. G. Scoville, *The Job Content of the Canadian Economy, 1941, 1951 and 1991*.
 Totals of labour force projections from *Ontario Labour Force Projections, 1978-1991*, Economic Planning Branch,
 Policy Planning Division, Dept. of Treasury and Economics, October 1980.

TABLE 5

EDUCATIONAL ATTAINMENT OF THE CANADIAN LABOUR FORCE
14 YEARS OF AGE AND OVER, 1960 AND 1965

	Males		Females		Total	
	1960	1965	1960	1965	1960	1965
Per cent						
Less than a Complete High School Education	78.8	75.1	65.1	62.4	75.3	71.4
Completed High School Education or Attended University	21.2	24.9	35.0	37.5	24.7	28.6
University Degree	4.8	5.7	3.6	4.6	4.5	5.4

Source: DBS, Special Labour Force Study No.1, Educational Attainment of the Canadian Population and Labour Force, 1960-65 by F.J. Whittingham, p.21. Data shown is based on a February survey.

The table shows that, with the exception of those having a university degree, females in the labour force were better educated both in 1960 and 1965. Over the five-year period, the gap, expressed in terms of percentage points, has narrowed for all three attainment levels.

The computed achievement of the Canadian and Ontario labour force is summarized in Table 6. While Canadian educational achievement levels have been applied to Ontario data, the figures are not identical because of differing proportions of the labour force in various job families. For males, the educational achievement levels in the labour force are higher in Ontario than for the Canadian labour force. For females, the picture is not so clear since females in the Ontario labour force had a larger proportion in the secondary

TABLE 6

EDUCATIONAL ACHIEVEMENT OF THE CANADIAN AND ONTARIO LABOUR FORCE, 1961

	<u>Canada</u>	<u>Ontario</u>
	Per Cent	
Males		
Elementary	40.5	38.2
Secondary	49.3	50.9
University	10.2	10.9
Females		
Elementary	28.4	27.3
Secondary	63.1	64.9
University	8.5	7.8
Total		
Elementary	37.1	35.0
Secondary	53.2	55.0
University	9.7	10.0

achievement group. At the same time, the proportion of Ontario females having attended university was lower than for all Canada.

Comparison of total figures for males and females shows that the educational achievement of the Ontario labour force was higher than that of Canada. The data in Table 6 confirms the conclusions of Table 5 in that, except at the university level, females in the labour force had a higher educational achievement.

The extent to which educational achievement levels vary by industry is presented in Table 7. The data shows that educational achievement at the university level shows marked industry contrasts. For example, in agriculture 2.2 per cent of the labour force were in the university category, while in the community, business and personal service industry almost 20 per cent were in the same category. Except for agriculture, forestry, fishing and trapping, mines, quarries and oil wells, and construction, each of the other industries had less than 50 per cent of the labour force possessing an elementary educational achievement.

The highest proportion of the labour force with a secondary educational achievement was found in the finance, insurance, and real estate industry group at 76.2 per cent. This industry group also had the smallest proportion in the elementary educational achievement group.

The elementary educational achievement column provides a good indication of the degree of general level training and skill requirements by industry. There is a high degree of correlation between low educational achievement and primary industries. Almost 70 per cent of those in fishing and trapping have an elementary educational achievement level. Admittedly, the numbers involved are small - fewer than 1,500 persons - but the conclusion can be

TABLE 7

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY INDUSTRY, 1961

Industry	Elementary	Secondary	University	Total	%	Percentage Distribution		
						Elementary	Secondary	University
Agriculture	97,929	66,513	3,764	168,205	7.4	58.2	39.6	2.2
Forestry	11,143	5,762	761	17,666	0.7	63.1	32.6	4.3
Fishing and Trapping	1,472	566	70	2,108	0.1	69.9	26.8	3.3
Mines, Quarries, and Oil Wells	19,096	20,402	2,696	42,194	1.8	45.3	48.3	6.4
Manufacturing	242,708	349,685	46,191	638,584	27.9	38.0	54.8	7.2
Construction	79,397	68,127	5,470	152,994	6.7	51.9	44.5	3.6
Transportation, Communication, and Other Utilities	64,462	116,737	12,660	193,859	8.5	33.3	60.2	6.5
Trade	109,824	226,044	32,348	368,216	16.1	29.8	61.4	8.8
Finance, Insurance, and Real Estate	10,321	74,447	12,898	97,666	4.3	10.6	76.2	13.2
Community, Business, and Personal Service	131,311	241,311	92,188	464,810	20.3	28.3	51.9	19.8
Public Administration	32,538	88,678	19,394	140,610	6.2	23.1	63.1	13.8
Total	800,201	1,258,271	228,440	2,286,912	100.0	35.0	55.0	10.0

drawn that in this and other primary industries a significant proportion of the labour force is just at or even below the level of functional literacy.

Tables 8 and 9 provide a male-female breakdown of the labour force by industry. In the case of males, the community, business and personal service industry moves higher compared to the total labour force - with almost 30 per cent - of the male labour force with a university educational achievement. The elementary category for males accounted for a larger proportion of males than the total labour force because, as has been noted, females tend to have a greater proportion in the secondary educational achievement level than males. A comparison of Tables 8 and 9 shows that in each industry, with the exception of construction, there is a higher proportion of males than females in the university achievement level column.

The educational achievement of the Ontario labour force by job family is summarized in Table 10. This breakdown reveals that there is a much greater spread of educational achievement levels as between job families than was noted in the industrial breakdown. At the university achievement level, for example, the vehicle operation job family with 1.3 per cent of the labour force sharply contrasts with the welfare job family in which 64.2 per cent have a university educational achievement level. While the

TABLE 8

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY INDUSTRY, MALES, 1961

Industry	Elementary	Secondary	University	Total	Percentage Distribution		
					Elementary	Secondary	University
Agriculture	84,794	56,061	3,406	144,260	9.0	58.8	38.8
Forestry	10,875	5,421	743	17,039	1.0	63.8	31.8
Fishing and Trapping	1,434	532	67	2,033	0.1	70.5	26.2
Mines, Quarries, and Oil Wells	18,968	19,600	2,635	41,202	2.6	46.0	47.6
Manufacturing	189,324	269,416	42,106	500,847	31.1	37.8	53.8
Construction	78,820	64,422	5,234	148,476	9.2	53.1	43.4
Transportation, Communication, and Other Utilities	60,797	92,306	11,220	164,323	10.2	37.0	56.2
Trade	83,309	138,039	26,928	248,276	15.4	33.6	55.6
Finance, Insurance, and Real Estate	5,347	34,901	10,550	50,798	3.1	10.5	68.7
Community, Business, and Personal Service	53,663	81,127	56,434	191,224	11.9	28.1	42.4
Public Administration	28,298	58,301	16,230	102,830	6.4	27.5	56.7
Total	615,629	820,126	175,553	1,611,308	100.0	38.2	50.9
							10.8
							20.8
							29.5
							15.8
							10.9

TABLE 9

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY INDUSTRY, FEMALES, 1961

Industry	Elementary	Secondary	University	Total	Percentage Distribution	
					Elementary	Secondary
Agriculture	13,134	10,452	358	23,944	3.5	54.9
Forestry	268	340	19	627	0.1	42.8
Fishing and Trapping	39	34	2	75	-	52.0
Mines, Quarries, and Oil Wells	128	803	61	991	0.1	12.9
Manufacturing	53,383	80,269	4,085	137,738	20.4	38.7
Construction	578	3,705	236	4,518	0.7	12.8
Transportation, Communication, and Other Utilities	3,665	24,430	1,441	29,536	4.4	12.4
Trade	26,515	88,005	5,420	119,940	17.7	22.1
Finance, Insurance, and Real Estate	4,974	39,546	2,348	46,868	6.9	10.6
Community, Business, and Personal Service	77,649	160,183	35,754	273,586	140.5	28.4
Public Administration	4,240	30,377	3,163	37,780	5.6	11.2
Total	184,572	438,145	52,886	675,603	100.0	27.3
						64.9
						8.4
						7.8

educational achievement of this group is indeed high, only 0.6 per cent of the total labour force are in the welfare job family.

Job families in which university educational achievement is attained by more than ten per cent of the labour force include: sales - knowledge required; entertainment; education and training; health; welfare; administration and organization; and research and design.

An examination of the data for the tools, machines, and sales groups reveals some interesting parallel and contrasting developments in terms of educational achievement levels. In both the tools and machines group, over one-half of those in the labour force possessed not more than an elementary educational achievement level. The differences between the four job families in terms of educational achievement are quite small. It should be noted that the educational achievement levels shown are not those of the entire labour force in a particular job family, but rather of those who might be termed to be relatively new entrants - the 25-34 age groups. The two sales job families indicate that sales - considerable knowledge of product required category shows lower secondary educational achievement levels than the sales - considerable knowledge of product not required job family, although at the university level the former accounts for a larger proportion than the latter.

It can be seen from Table 10 that educational achievement levels for large numbers in the labour force are not high. Thus, in

TABLE 10

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY JOB FAMILY, 1961

Job Family	Elementary	Secondary	University	Total	%	Percentage Distribution		
						Elementary	Secondary	University
Tools - Specialized	50,422	46,053	2,226	98,701	4.3	51.1	46.7	2.2
Tools - Non-specialized	210,185	176,722	5,712	392,619	17.2	53.5	45.0	1.5
Machines - Specialized	26,694	24,606	1,720	53,020	2.3	50.4	46.4	3.2
Machines - Non-specialized	110,732	93,211	2,707	206,650	9.0	53.6	45.1	1.3
Inspection	23,300	51,882	7,455	82,637	3.6	28.2	62.8	9.0
Vehicle Operation	61,466	54,173	1,483	117,123	5.1	52.5	46.2	1.3
Farm	94,579	62,920	2,795	160,294	7.0	59.0	39.3	1.7
Sales - Knowledge Required	13,013	39,659	5,944	58,616	2.6	22.2	67.7	10.1
Sales - Knowledge Not Required	26,681	86,909	10,000	123,590	5.5	21.6	70.3	8.1
Clerical	34,586	304,058	30,232	368,876	16.1	9.4	82.4	8.2
Personal Service	86,670	70,825	2,907	160,402	7.0	54.0	44.2	1.8
Entertainment	1,791	7,198	3,272	12,261	0.5	14.6	58.7	26.7
Protection	8,427	20,861	1,134	30,422	1.3	27.7	68.6	3.7
Education and Training	1,153	25,617	34,113	60,883	2.7	1.9	42.1	56.0
Health	11,494	47,929	24,978	84,401	3.7	13.6	56.8	29.6
Welfare	697	4,110	8,630	13,437	0.6	5.2	30.6	64.2
Administration and Organization	36,877	126,956	55,497	219,330	9.6	16.8	57.9	25.3
Research and Design	1,435	14,583	27,631	43,649	1.9	3.3	33.4	63.3
Total	800,201	1,258,271	228,440	2,286,912	100.0	35.0	55.0	10.0

seven of the 18 job families, over one-half of the labour force has an elementary educational achievement. These seven job families accounted for 52 per cent of the Ontario labour force.

We have already drawn attention to the fact that of the males in the labour force, there was a higher proportion of the total with an elementary educational achievement level than was true for females. The extent to which this pattern exists in job families can be seen in Tables 11 and 12. A comparison of the two tables reveals that there are six job families in the male labour force in which 50 per cent or more of the labour force has an elementary educational achievement level. While it is true that there are the same number of female job families with this educational achievement level (in practically the same job families), the females in these job families represented 34.7 per cent of the total female labour force while for males the proportion was 54.3 per cent.

A comparison of male and female university educational achievement levels reveals that in the case of males, four job families - education and training, health, welfare, and research and design - had more than 50 per cent of the labour force at this level. Taken together these four job families represented 98,000 persons or only 6.1 per cent of the male labour force. Only in the research and design job family did more than 50 per cent of the female labour possess a university educational

TABLE 11

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY JOB FAMILY, MALES, 1961

Job Family	Elementary	Secondary	University	Total	Percentage Distribution	
					Elementary	Secondary
Tools - Specialized	38,074	37,753	2,085	77,912	4.8	48.9
Tools - Non-specialized	196,430	168,085	5,582	370,097	22.9	53.1
Machines - Specialized	25,275	23,676	1,637	50,589	3.2	50.0
Machines - Non-specialized	74,135	70,044	2,494	146,674	9.1	50.5
Inspection	20,644	48,415	6,941	76,000	4.7	27.2
Vehicle Operation	61,257	53,477	1,442	116,176	7.2	52.7
Farm	81,906	53,357	2,506	137,769	8.6	59.5
Sales - Knowledge Required	12,313	35,094	5,564	52,971	3.3	23.2
Sales - Knowledge Not Required	11,367	48,001	8,532	67,900	4.2	16.7
Clerical	15,442	95,938	18,803	130,182	8.1	11.9
Personal Service	29,729	22,996	1,508	54,233	3.3	54.8
Entertainment	1,428	4,524	1,851	7,804	0.5	18.3
Protection	8,210	20,332	1,005	29,547	1.8	27.8
Education and Training	467	4,822	17,216	22,505	1.4	2.1
Health	4,176	6,713	14,144	25,033	1.6	16.7
Welfare	347	2,023	6,592	8,962	0.6	3.9
Administration and Organization	33,114	111,254	51,140	195,507	12.1	16.9
Research and Design	1,316	13,621	26,511	41,447	2.6	3.2
Total	615,629	820,126	175,554	1,611,310	100.0	38.2
						50.9
						10.9

TABLE 12

EDUCATIONAL ACHIEVEMENT OF THE ONTARIO LABOUR FORCE, BY JOB FAMILY, FEMALES, 1961

<u>Job Family</u>	<u>Elementary</u>	<u>Secondary</u>	<u>University</u>	<u>Total</u>	<u>%</u>	<u>Elementary</u>	<u>Secondary</u>	<u>University</u>
Tools - Specialized	12,348	8,300	141	20,790	3.1	59.4	39.9	0.7
Tools - Non-specialized	13,755	8,636	130	22,522	3.3	61.1	38.3	0.6
Machines - Specialized	1,418	929	83	2,431	0.4	58.4	38.2	3.4
Machines - Non-specialized	36,596	23,167	213	59,976	8.9	61.0	38.6	0.4
Inspection	2,656	3,467	515	6,638	1.0	40.0	52.2	7.8
Vehicle Operation	209	696	41	946	0.1	22.1	73.5	4.4
Farm	12,672	9,564	289	22,525	3.3	56.3	42.4	1.3
Sales - Knowledge Required	700	4,565	380	5,645	0.8	12.4	80.9	6.7
Sales - Knowledge Not Required	15,314	38,908	1,468	55,690	8.2	27.5	69.9	2.6
Clerical	19,144	208,120	11,430	238,694	35.3	8.0	87.2	4.8
Personal Service	56,941	47,829	1,399	106,169	15.7	53.6	45.1	1.3
Entertainment	363	2,673	1,421	4,458	0.6	8.1	60.0	31.9
Protection	217	529	129	875	0.1	24.8	60.5	14.7
Education and Training	686	20,795	16,897	38,378	5.8	1.8	54.2	44.0
Health	7,319	41,215	10,834	59,368	8.9	12.3	69.4	18.3
Welfare	350	2,087	2,038	4,475	0.7	7.8	46.6	45.6
Administration and Organization	3,764	15,702	4,357	23,823	3.5	15.8	65.9	18.3
Research and Design	119	962	1,120	2,202	0.3	5.4	43.7	50.9
Total	184,572	438,145	52,886	675,603	100.0	27.3	64.9	7.8

achievement level. Table 12 shows that this female job family accounted for a mere 0.3 per cent of the female labour force.

7. Matrix of Educational Achievement Levels, Industry by Job Family

In the process of reclassifying the Census occupational data of industry by occupation and education into the 18 job families used in this study, the computer printouts provided a great deal of information at the three digit industry level for both Ontario and Canada. This material runs to several hundred pages and it was not considered practical to reproduce all of it.⁽¹⁾ What we have attempted is to prepare a matrix which would summarize the computer printout while at the same time conveying information in a form suitable for analysis. What follows is a summary of the findings which, it is hoped, will provide a glimpse of both the forest and the trees.

Six matrixes have been prepared for the Ontario labour force. Tables 13, 14, and 15 present the data for total labour force as well as for the male and female components while Tables 16, 17, and 18 show the percentage distributions by educational achievement levels for total, males, and females, respectively.⁽²⁾

(1) These printouts may be consulted by arrangement with the Director of the Economic Planning Branch, Dept. of Treasury and Economics, Queen's Park, Toronto.

(2) See Appendix Tables A-1 to A-6 for Canadian data.

TABLE 13

MATRIX OF INDUSTRY/MOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS, ONTARIO LABOUR FORCE, 1951

Industry		Education		Fishing and Trapping		Mining, Quarries, and Oil Wells		Manufacturing		Construction		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Community, Business, and Personal Services		Public Adminis- tration	Total
Job Family	Level	Elementary	Secondary	Agriculture	Forestry	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary	Total	
Toots - Specialized	E	76	7,026	20	193	15,250	10,803	3,892	3,071	26	9,363	682	50,422						
	S	27	1,796	9	329	18,302	9,167	3,013	95	6,152	1,241	46,033							
	U	1	62	-	78	548	181	630	113	6	340	248	2,226						
Toots - Non-specialized	E	507	1,316	96	2,295	73,923	49,854	19,060	30,914	2,129	16,955	12,118	210,185						
	S	300	799	50	3,776	71,563	35,729	16,556	29,064	1,388	11,697	7,794	176,777						
	U	15	41	3	164	2,349	1,039	641	936	47	429	268	1,312						
Machinery - Specialized	E	16	193	1,920	11,126	6,714	4,299	1,316	604	9	402	995	26,946						
	S	9	150	298	10,127	6,908	2,744	1,880	465	23	998	1,095	26,489						
	U	-	7	7	584	321	67	123	28	-	476	108	1,710						
Machinery - Non-specialized	E	190	120	382	1,002	93,272	3,214	1,402	7,536	129	2,337	1,258	110,731						
	S	149	109	90	987	77,930	2,150	1,160	6,111	123	2,133	1,175	95,231						
	U	4	3	2	32	2,189	66	62	163	12	103	72	2,707						
Inspection	E	205	455	2	1,740	1,001	2,024	5,422	1,283	95	459	2,108							
	S	256	338	10	1,023	29,633	1,558	8,022	2,792	349	1,649	4,841	51,882						
	U	29	30	3	160	9,866	345	381	475	63	453	1,050	7,532						
Vehicle Operation	E	411	660	12	1,360	13,102	3,368	23,926	13,646	35	2,267	2,576	51,666						
	S	277	454	10	1,213	2,377	13,567	11,186	58	2,221	1,866	54,171							
	U	5	15	-	28	247	43	383	254	3	64	41	1,483						
Farm	E	93,599	24	-	190	1	14	283	1	245	220	94,579							
	S	62,410	17	-	98	1	9	146	-	128	113	62,920							
	U	2,769	1	-	4	-	1	6	-	8	6	2,795							
Sales - Knowledge Required	E	22	9	-	41	6,495	75	845	3,495	1,454	252	114	13,012						
	S	42	26	-	115	12,852	308	1,591	9,239	13,644	1,156	490	39,656						
	U	2	3	-	15	1,076	30	160	915	3,437	207	80	5,944						
Sales - Knowledge Not Required	E	66	3	-	9	3,160	106	161	22,292	27	833	24	26,881						
	S	228	11	-	53	16,770	527	751	65,753	110	2,643	64	86,905						
	U	37	1	-	11	3,545	106	163	5,736	16	882	3	10,000						
Clerical	E	51	84	2	194	8,126	377	6,339	6,639	6,412	4,105	4,356	54,565						
	S	516	497	19	1,038	67,585	4,243	51,999	6,119	4,712	4,101	4,390	5,856	4,059	30,232				
	U	39	2	2	248	5,941	506	404	111	3	2,207	143	2,907						
Personal Service	E	2,519	471	1	136	2,066	211	1,746	2,322	964	72,829	3,080	86,610						
	S	1,696	326	1	94	1,256	127	1,412	2,247	710	60,321	2,047	70,812						
	U	175	19	-	5	82	8	104	203	3	2,207	143	2,907						
Entertainment	E	4	-	-	135	-	-	63	26	1	1,513	47	1,791						
	S	14	-	-	1	1,085	2	372	219	13	3,210	182	7,196						
	U	8	-	-	1	589	1	201	113	10	2,263	86	3,272						
Protection	E	31	87	3	130	1,810	197	545	297	108	1,344	3,875	8,427						
	S	40	133	7	199	2,476	242	1,052	423	156	2,001	34,112	20,851						
	U	4	20	1	11	207	29	64	38	16	165	580	1,134						
Education and Training	E	-	-	-	20	-	-	11	19	4	995	106	1,153						
	S	-	-	-	40	-	-	24	29	7	25,189	327	25,817						
	U	-	-	-	25	-	-	20	21	4	33,726	309	36,113						
Health	E	56	1	-	36	185	3	47	59	5	19,866	240	11,996						
	S	108	1	-	66	949	16	102	307	51	45,178	1,150	47,929						
	U	417	-	-	29	479	4	44	2,532	68	20,221	685	24,978						
Welfare	E	-	-	-	1	-	-	-	-	-	634	63	697						
	S	-	-	-	11	-	-	-	-	-	2,251	44	4,142						
	U	2	-	-	12	-	-	-	-	-	2,260	687	8,640						
Administration and Organization	E	170	546	32	277	5,185	4,624	1,895	37,288	681	5,581	946	30,917						
	S	421	531	67	601	26,123	3,237	7,792	42,162	10,572	19,652	9,024	128,956						
	U	566	306	20	244	11,579	2,646	5,636	12,709	4,191	5,501	5,901	55,137						
Research and Design	E	4	292	1	32	471	40	121	31	36	250	35	1,153						
	S	23	287	6	331	5,871	671	1,398	541	257	2,918	2,533	14,583						
	U	92	175	22	1,106	11,701	597	2,691	1,140	308	4,341	6,187	27,612						
Total	E	97,829	11,743	1,472	19,096	242,708	79,397	64,462	109,824	19,221	131,311	17,528	900,201						
	S	66,513	5,782	568	23,402	349,683	68,127	116,737	226,046	74,647	241,311	68,678	1,258,271						
	U	3,764	761	70	2,496	46,191	5,470	12,660	32,348	12,698	92,388	228,60							

TABLE 15

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS, ONTARIO LABOUR FORCE, MARCH, 1961

		Industry			Mines, Quarries, and Oil Wells			Manufacturing			Transportation, Communication, and other Utilities			Finance, Insurance, and Personal Service			Community, Business, and Personal Service			Public Administration			Total		
		Education ⁽¹⁾		Agriculture		Fishing and Trapping		Mines, Quarries, and Oil Wells			Manufacturing		Construction		Transportation, Communication, and other Utilities		Trade		Finance, Insurance, and Personal Service		Community, Business, and Personal Service		Public Administration		Total
Job Family	Level	E	S					E	S	U	E	S	U	E	S	U	E	S	U	E	S	U	E	S	U
Tools - Specialized	E	70	7,021	20	192	4,350	10,798	3,869	1,159	24	3,958	612	28,074												
	S	23	1,793	9	252	15,172	5,818	9,150	1,677	84	2,322	1,176	37,753												
	U	1	62	-	78	521	381	619	87	6	276	265	2,085												
Tools - Non-specialized	E	644	1,248	60	3,275	67,819	49,712	18,809	29,113	1,425	12,099	11,517	196,115												
	S	272	191	15	1,766	67,862	35,661	14,401	27,410	996	9,487	7,657	168,085												
	U	32	39	3	144	2,303	1,037	438	910	42	391	263	5,587												
Machine - Specialized	E	16	182	1,012	11,122	5,458	4,239	1,210	562	8	328	987	25,375												
	S	9	167	294	10,325	6,151	2,746	1,865	423	23	910	986	23,476												
	U	-	7	506	206	67	119	25	-	423	99	1,837													
Machine - Non-specialized	E	77	117	281	995	59,379	5,161	1,319	5,497	120	2,146	1,222	74,115												
	S	72	107	89	981	55,581	2,239	1,512	5,220	232	2,411	1,601	70,454												
	U	3	3	2	32	1,394	64	61	149	12	102	72	5,542												
Inspection	E	87	455	2	1,250	10,566	2,022	3,060	1,098	91	363	1,630	20,664												
	S	154	325	10	1,188	27,178	3,052	7,841	2,353	234	1,338	4,562	21,117												
	U	25	29	3	156	3,460	344	964	438	60	342	952	5,541												
Vehicle Operation	E	609	607	12	1,339	13,073	3,566	23,864	13,596	32	2,189	2,158	61,379												
	S	272	452	10	963	11,127	2,130	23,468	10,953	36	2,059	2,059	55,173												
	U	5	15	-	28	243	43	778	235	2	56	1,399	1,402												
Farm	E	81,015	21	-	-	168	1	14	238	1	238	219	81,300												
	S	52,309	15	-	-	82	1	9	105	-	123	113	51,327												
	U	2,482	1	-	-	6	1	1	5	-	8	6	2,509												
Sales - Knowledge Required	E	20	9	-	-	640	76	835	2,242	1,430	214	108	12,313												
	S	20	16	-	-	136	11,720	296	1,521	12,611	808	659	15,494												
	U	1	3	-	-	15	1,006	49	155	765	3,313	182	76	5,564											
Sales - Knowledge Not Required	E	39	2	-	-	7	2,233	90	131	8,597	15	267	10	11,217											
	S	151	9	-	-	47	13,964	477	653	31,315	74	1,092	26	8,001											
	U	28	1	-	-	11	3,615	101	127	4,551	34	270	2	8,322											
Clerical	E	11	72	1	145	4,402	292	3,872	2,467	1,027	1,010	1,964	5,542												
	S	92	342	6	936	23,753	1,937	21,458	12,993	9,668	9,109	13,666	65,338												
	U	17	70	1	268	4,748	439	2,774	2,335	2,167	3,109	2,544	19,803												
Personal Service	E	2,355	298	-	101	1,193	355	1,307	682	488	20,688	2,461	24,724												
	S	3,545	204	-	65	790	101	927	490	321	16,853	1,570	27,996												
	U	167	16	-	4	55	7	73	36	22	1,601	127	1,500												
Entertainment	E	4	-	-	-	126	-	43	25	1	1,180	62	-	-											
	S	12	-	-	-	1	904	1	251	153	10	3,450	4,325												
	U	8	-	-	-	1	661	1	136	69	8	1,105	63	1,851											
Protection	E	31	86	3	130	1,803	186	542	283	105	1,308	3,772	9,121												
	S	60	130	7	199	2,453	260	1,043	359	166	1,059	1,769	20,172												
	U	6	19	1	11	185	29	27	32	117	531	1,035													
Education and Training	E	-	-	-	-	12	-	8	7	3	377	60	-	-											
	S	-	-	-	-	30	-	21	17	6	4,562	183	4,622												
	U	-	-	-	-	31	-	17	13	6	16,937	216	17,215												
Health	E	51	3	-	-	36	106	23	37	2	3,776	143	-	-											
	S	50	1	-	-	55	337	1	25	163	2	5,766	273	7,711											
	U	407	-	-	-	25	274	-	15	2,104	45	10,528	548	-											
Welfare	E	-	-	-	-	1	-	-	-	-	-	-	-												
	S	-	-	-	-	9	-	-	-	-	-	-	-												
	U	2	-	-	-	8	-	-	-	-	-	-	-												
Administration and Organization	E	163	564	32	276	4,863	4,390	1,679	16,324	566	3,485	807	33,116												
	S	367	825	66	588	26,582	9,016	6,817	35,770	9,963	15,035	8,204	111,256												
	U	155	303	29	240	31,392	1,808	2,531	16,017	4,016	11,453	5,393	51,160												
Research and Design	E	6	201	1	22	452	40	111	43	21	209	203	1,316												
	S	23	286	6	247	5,708	468	1,327	493	313	2,316	2,316	23,631												
	U	89	176	22	1,102	11,309	953	2,024	1,023	328	3,938	6,679	26,511												
Total	E	84,796	10,875	1,434	10,968	189,326	79,839	60,797	83,009	3,367	3,367	42	88,280	61,629											
	S	56,061	3,421	532	19,600	289,616	64,441	91,205	188,339	34,201	31,127	36,301	820,126												
	U	3,408	743	67	2,635	42,106	2,734	11,210	16,928	14,209	16,434	16,230	175,556												

(1) E - Elementary
S - Secondary
U - University

TABLE 15

MATRIX OF INDUSTRY/JOB FAMILY/EDUCATIONAL ACHIEVEMENT LEVELS, ONTARIO LABOUR FORCE, FEBRUARY, 1951

Industry	Education	Mines, Quarries, and Oil Wells						Transportation, Communication, and Other Utilities			Finance, Insurance, and Other Business		Community, Business, and Personal Service		Public Administration		Total
		Agriculture	Forestry	Fishing and Trapping	Manufacturing	Construction	Trade	Real Estate	Trade	Community Business	Personal Service	Trade	Other Business	Community Business	Personal Service	Trade	Other Business
Tools - Specialized	E	7	5	-	-	3,910	5	22	1,552	12	6,766	70	12,368				
	S	4	2	-	-	3,120	4	18	1,247	11	5,929	65	8,200				
	U	-	-	-	-	46	-	1	27	-	66	5	143				
Tools - Non-specialized	E	63	66	37	21	6,105	162	271	1,881	703	3,936	602	13,735				
	S	36	38	15	12	3,700	80	155	1,554	391	2,210	337	8,636				
	U	2	2	1	-	46	2	23	25	6	38	5	120				
Machines - Specialized	E	-	1	8	4	1,253	-	6	65	-	76	8	1,618				
	S	-	3	5	2	757	-	15	41	-	88	20	929				
	U	-	-	-	-	15	-	3	3	-	53	9	83				
Machines - Non-specialized	E	113	2	2	8	34,093	30	83	2,037	-	193	36	36,596				
	S	73	2	1	6	21,427	22	56	1,392	-	140	34	23,167				
	U	1	-	-	-	195	-	1	16	-	2	-	213				
Inspection	E	117	-	-	3	2,125	2	22	185	4	88	58	2,656				
	S	100	3	-	15	2,279	6	101	259	16	371	279	3,449				
	U	4	1	-	6	228	1	17	57	3	111	107	315				
Vehicle Operation	E	2	1	-	-	29	2	59	50	3	57	6	203				
	S	6	1	-	-	70	7	161	222	22	185	31	636				
	U	-	-	-	-	4	-	7	19	1	8	2	41				
Farm	E	12,585	3	-	-	21	-	-	58	-	7	1	12,872				
	S	9,501	2	-	-	16	-	-	39	-	5	1	9,566				
	U	287	-	-	-	-	-	-	1	-	-	-	289				
Sales - Knowledge Required	E	2	-	-	-	156	2	11	256	324	68	7	790				
	S	13	-	-	-	1,123	11	70	1,708	1,332	368	49	4,565				
	U	1	-	-	-	70	1	5	150	123	25	4	300				
Sales - Knowledge Not Required	E	28	1	-	2	929	16	30	13,695	32	587	14	15,311				
	S	77	1	-	6	2,807	50	98	34,238	36	1,581	36	38,908				
	U	9	-	-	-	130	5	5	1,205	1	112	1	1,448				
Clerical	E	40	12	1	49	3,316	285	2,657	3,972	3,385	3,095	2,313	19,164				
	S	426	155	12	703	41,472	3,240	21,865	38,746	36,799	38,369	26,405	20,129				
	U	22	9	1	40	2,193	178	938	1,886	1,923	2,162	1,315	11,620				
Personal Service	E	146	173	1	36	875	56	460	1,840	476	52,241	620	56,951				
	S	149	123	1	29	766	36	485	1,858	389	43,239	477	47,779				
	U	8	3	-	1	27	1	38	58	31	1,105	15	1,399				
Entertainment	E	-	-	-	-	9	-	29	3	-	235	5	383				
	S	1	-	-	-	180	-	121	66	3	2,264	39	2,672				
	U	-	-	-	-	118	-	63	46	2	1,158	23	1,421				
Protection	E	-	1	-	-	6	1	3	13	4	26	152	237				
	S	1	3	-	-	21	-	9	35	10	105	364	529				
	U	-	-	-	-	12	-	6	11	4	48	49	129				
Education and Training	E	-	-	-	-	8	-	3	12	1	610	44	686				
	S	-	-	-	-	7	-	4	12	1	20,626	144	20,795				
	U	-	-	-	-	5	-	2	8	-	16,707	95	16,837				
Health	E	5	-	-	1	39	2	19	22	3	7,090	97	7,319				
	S	18	1	-	11	612	16	77	165	49	39,614	875	41,215				
	U	10	-	-	4	205	3	29	218	23	9,995	337	10,836				
Welfare	E	-	-	-	-	2	-	-	-	-	329	21	350				
	S	-	-	-	-	2	-	-	-	-	1,928	157	2,287				
	U	-	-	-	-	4	-	-	-	-	1,713	282	2,038				
Administration and Organization	E	7	3	-	3	242	33	127	955	341	2,984	157	3,764				
	S	44	6	1	16	1,720	201	946	6,373	672	4,916	810	15,702				
	U	11	2	-	4	587	42	246	1,138	174	1,246	406	4,357				
Research and Design	E	-	1	-	-	20	-	10	8	5	42	22	71				
	S	2	1	-	6	143	2	31	65	46	366	183	4,360				
	U	3	-	-	4	191	4	76	77	52	464	308	4,347				
Total	E	15,134	268	39	128	51,383	378	3,685	28,515	4,976	77,668	4,360	11,7				
	S	10,521	340	34	803	60,269	3,705	28,430	88,905	39,546	169,183	30,377	11,121				
	U	518	19	5	61	6,085	238	1,461	5,420	2,318	35,756	3,103	2,444				

(E) E = Elementary
S = Secondary
U = University

In view of the large amount of information available from these matrixes, only some of the most pertinent applications will be pointed out. Rather than catalogue all conclusions, it is here intended to show how the matrix format can be used as an analytical tool.

From Table 13 it can be seen that the largest number of persons in the Ontario labour force were in the secondary educational achievement level. Within that level, the clerical job family accounted for the largest number. Taken one step further, within the clerical job family itself, manufacturing was the industry in which the largest number of persons with a secondary achievement level were employed. Other educational achievement levels can also be traced in order to determine in which industry and job family they are particularly significant.

The matrix format also permits isolation of educational achievement levels by industry and focuses on key job families within that industry. In the case of agriculture, for example, the totals for the first columns reveal that elementary educational achievement levels are the most important. Further examination of the column indicates that the farm job family accounts for practically all such persons.

The percentage distributions shown in matrix Tables 16, 17 and 18 form a useful basis in preparing projections of educational requirements after labour force demands have been derived by industry. This will form the next phase of a series of studies currently being undertaken in Economic Planning Branch.

TABLE 16

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS - PERCENTAGE DISTRIBUTION, ONTARIO LABOUR FORCE, 1961

	Education				Mines, Quarries and Oil Fields			Transportation, Communication, and Public Utilities			Finance, Insurance, and Real Estate		Business, Profession, and Personal Services		Public Administration		Total
	Elementary	Secondary	Tertiary	Post-Secondary	Fishing and Trapping	Mining/ Logging	Construction	Trade	Reg. Estat.	Trade	Reg. Estat.	Business	Profession	Personal	Services	Total	
Tools - Specialized	E	73.2	79.1	69.4	32.1	-6.7	64.3	28.5	49.6	26.5	55.7	31.4	51.1	51.1	51.1	51.1	
	S	26.1	20.2	29.8	54.9	24.4	34.7	45.0	50.3	49.2	44.3	57.3	48.7	48.7	48.7	48.7	
	U	0.7	0.7	0.7	12.0	1.2	1.1	4.6	1.8	4.2	2.1	11.6	2.2	2.2	2.2	2.2	
Tools - Non-specialized	E	61.1	61.0	66.3	55.7	-6.0	57.5	56.0	59.8	39.7	58.3	60.1	53.5	53.5	53.5	53.5	
	S	37.1	37.1	33.0	52.3	-6.4	61.2	62.7	47.7	38.9	40.2	58.6	45.0	45.0	45.0	45.0	
	U	1.8	1.9	1.9	1.6	1.6	1.2	1.3	1.5	1.3	1.5	1.3	1.5	1.5	1.5	1.5	
Machines - Specialized	E	63.6	53.2	77.0	50.9	-8.1	60.5	39.7	55.1	28.8	21.4	47.2	50.6	50.6	50.6	50.6	
	S	36.0	42.7	22.5	46.4	-9.6	38.6	56.6	62.4	71.7	53.2	47.7	45.6	45.6	45.6	45.6	
	U	0.6	2.1	0.5	2.7	2.3	0.9	3.7	2.5	1.5	25.6	5.1	3.2	3.2	3.2	3.2	
Machines - Non-specialized	E	65.5	51.6	75.4	49.6	-6.1	58.0	46.3	52.7	32.9	46.8	42.6	53.6	53.6	53.6	53.6	
	S	63.5	48.9	24.0	48.8	-6.8	40.6	51.7	46.2	63.8	31.1	53.2	45.1	45.1	45.1	45.1	
	U	1.0	1.5	0.6	1.8	1.3	1.2	2.0	1.1	3.3	2.1	2.1	2.1	2.1	2.1	2.1	
Inspection	E	41.9	50.0	17.0	68.7	17.6	37.1	25.8	28.2	23.6	17.5	22.3	28.2	28.2	28.2	28.2	
	S	32.1	40.3	65.5	45.3	14.0	36.2	66.1	61.6	61.0	64.9	53.5	51.8	51.8	51.8	51.8	
	U	0.6	3.7	17.5	6.0	8.4	6.4	8.1	1.0	13.6	17.6	12.8	9.0	9.0	9.0	9.0	
Vehicles (operation)	E	59.3	56.6	55.1	57.5	-3.3	60.6	49.5	56.4	36.5	49.6	58.2	52.5	52.5	52.5	52.5	
	S	42.2	42.3	42.3	41.3	2.7	25.3	48.9	48.8	59.3	49.0	48.9	65.2	65.2	65.2	65.2	
	U	0.7	1.6	1.4	1.2	1.0	0.7	1.6	1.0	3.6	1.4	0.9	1.3	1.3	1.3	1.3	
Farm	E	59.0	58.0	-	61.0	-6.0	59.8	61.0	65.4	61.0	64.3	66.8	59.0	59.0	59.0	59.0	
	S	39.3	39.9	-	25.6	12.5	36.5	36.2	23.2	35.6	33.7	32.3	39.3	39.3	39.3	39.3	
	U	1.7	2.1	-	3.6	1.5	3.7	2.0	3.4	3.6	2.0	1.9	1.7	1.7	1.7	1.7	
Sales - Knowledge Required	E	33.3	26.3	-	23.9	13.8	27.4	22.6	23.6	8.7	16.1	14.3	22.2	22.2	22.2	22.2	
	S	63.9	65.9	-	87.4	92.9	71.1	61.3	67.7	73.1	71.2	71.9	67.7	67.7	67.7	67.7	
	U	2.8	7.0	-	8.7	5.3	11.3	6.1	6.7	18.2	12.7	11.6	10.1	10.1	10.1	10.1	
Sales - Knowledge Not Required	E	19.9	18.8	-	12.8	12.5	14.3	15.3	23.6	17.5	21.6	28.6	21.6	21.6	21.6	21.6	
	S	69.0	71.2	-	72.2	73.4	71.3	71.2	70.1	72.1	68.5	70.1	70.3	70.3	70.3	70.3	
	U	11.1	10.0	-	15.0	15.1	14.6	13.5	6.1	10.4	9.9	3.5	8.1	8.1	8.1	8.1	
Clerical	E	8.5	12.7	8.4	9.3	9.9	9.0	11.9	10.3	7.9	7.2	8.8	9.4	9.4	9.4	9.4	
	S	85.1	75.4	82.7	82.7	81.2	81.2	82.1	82.1	82.8	82.8	82.8	81.6	81.6	81.6	81.6	
	U	12.0	9.8	12.0	8.6	9.5	8.9	8.3	8.6	8.3	10.2	8.4	8.2	8.2	8.2	8.2	
Personal Service	E	57.4	52.7	53.4	57.8	16.1	59.2	53.7	50.7	55.8	53.8	50.5	54.0	54.0	54.0	54.0	
	S	38.6	39.3	45.2	39.9	-1.7	38.5	42.9	47.2	41.1	44.6	38.8	44.2	44.2	44.2	44.2	
	U	4.0	2.4	1.6	2.3	2.2	3.4	2.1	3.1	1.6	2.7	1.8	1.8	1.8	1.8	1.8	
Entertainment	E	16.2	-	-	2.9	7.5	3.9	9.9	7.7	2.9	16.7	14.9	14.6	14.6	14.6	14.6	
	S	52.0	-	-	53.4	50.0	53.8	58.5	60.9	53.9	58.4	57.8	57.7	57.7	57.7	57.7	
	U	31.8	-	-	63.7	32.5	43.3	31.6	21.4	43.2	24.9	27.3	26.7	26.7	26.7	26.7	
Protection	E	41.2	39.3	25.7	38.2	-9.3	40.3	32.8	39.1	38.5	38.3	20.9	27.7	27.7	27.7	27.7	
	S	53.7	55.3	66.9	58.6	55.1	53.7	63.3	35.5	35.9	57.0	70.6	66.6	66.6	66.6	66.6	
	U	5.1	8.2	7.6	3.2	4.6	6.0	3.9	5.0	3.8	4.7	3.1	5.7	5.7	5.7	5.7	
Education and Training	E	-	-	-	-	21.0	-	20.2	27.8	26.0	1.7	14.0	1.9	1.9	1.9	1.9	
	S	-	-	-	-	41.4	-	44.2	42.7	44.7	42.0	42.0	42.1	42.1	42.1	42.1	
	U	-	-	-	-	31.7	-	35.5	30.0	37.3	36.3	41.8	35.0	35.0	35.0	35.0	
Health	E	9.7	36.9	49.5	27.8	11.5	12.5	22.4	2.6	4.3	14.2	10.3	13.8	13.8	13.8	13.8	
	S	54.3	43.2	50.3	48.8	50.8	50.5	54.3	18.0	41.0	59.0	50.6	56.8	56.8	56.8	56.8	
	U	71.8	8.9	5.3	22.0	19.7	16.5	23.3	87.4	54.7	26.8	38.9	29.6	29.6	29.6	29.6	
Welfare	E	2.1	-	-	-	5.0	-	-	-	-	5.2	4.9	5.2	5.2	5.2	5.2	
	S	13.3	-	-	-	45.1	-	-	-	-	29.3	62.9	30.6	30.6	30.6	30.6	
	U	84.6	-	-	-	65.9	-	-	-	-	65.5	51.2	64.2	64.2	64.2	64.2	
Administration and Organization	E	22.7	32.5	26.6	24.7	11.0	20.3	15.0	23.0	4.6	16.6	6.1	16.8	16.8	16.8	16.8	
	S	55.0	69.4	52.2	53.6	60.6	59.3	64.3	26.2	68.5	52.2	37.2	57.9	57.9	57.9	57.9	
	U	23.0	18.3	22.2	21.7	27.6	12.4	20.7	20.6	27.1	32.2	38.7	25.1	25.1	25.1	25.1	
Research and Design	E	3.6	30.6	4.5	1.6	-	2.7	2.9	2.9	6.7	3.3	3.1	3.3	3.3	3.3	3.3	
	S	20.5	43.3	20.6	18.2	-	31.1	33.2	20.0	44.1	28.9	31.1	31.1	31.1	31.1	31.1	
	U	73.9	26.3	75.1	80.2	-	66.3	63.9	65.1	49.1	37.0	65.1	65.1	65.1	65.1	65.1	
Total	E	58.2	63.1	69.9	43.2	10.0	51.9	33.3	29.8	10.6	22.1	21.0	55.0	55.0	55.0	55.0	
	S	37.6	32.0	26.8	58.2	1.8	45.8	50.2	41.0	75.2	51.9	63.1	55.0	55.0	55.0	55.0	
	U	2.2	4.3	3.2	6.6	7.2	3.6	6.5	9.8	12.2	19.8	12.8	10.0	10.0	10.0	10.0	

(1) E = Elementary
 S = Secondary
 U = University

TABLE 17

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ATTAINMENT LEVELS, PROVINCE: DISTRIBUTION, ONTARIO LABOUR FORCE, MALES, 1961

Industry		Level of Education		Primary, Secondary, and University		Manufacturing		Construction		Transportation, Communication, and Other Utilities		Trade, Hotel, and Restaurant		Private Service and Personal Service		Community, Social, and Political Activities		Trade, Hotel, and Restaurant		Private Service and Personal Service		Community, Social, and Political Activities		
				Fishing and Hunting	Agriculture	Manufacturing	Construction	Manufacturing	Construction	Transportation, Communication, and Other Utilities	Trade, Hotel, and Restaurant	Private Service and Personal Service	Community, Social, and Political Activities	Trade, Hotel, and Restaurant	Private Service and Personal Service	Community, Social, and Political Activities	Trade, Hotel, and Restaurant	Private Service and Personal Service	Community, Social, and Political Activities	Trade, Hotel, and Restaurant	Private Service and Personal Service	Community, Social, and Political Activities		
Tools - Specialized	I	T	7.8	79.1	60.4	32.1	5.3	7.1	26.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1		
	I	S	14.3	30.1	23.9	45.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	I	U	8.7	0.0	0.0	11.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
Tools - Non-specialized	I	T	40.9	10.9	63.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	I	S	37.2	13.1	53.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	I	U	1.6	1.4	1.4	2.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
Machines - Specialized	E	T	63.4	35.0	77.1	55.6	58.1	60.5	39.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	36.0	41.1	22.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	0.6	2.1	0.5	2.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Machines - Non-specialized	I	T	0.0	-1.5	75.5	49.5	49.6	48.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	4.4	57.0	23.9	48.9	45.1	45.4	45.4	52.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	1.8	1.5	0.6	1.8	2.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Inspection	I	T	32.7	5.6	17.3	10.0	7.4	27.1	25.8	21.0	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	I	S	50.0	-0.2	11.5	4.1	4.1	4.1	66.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	I	U	8.2	1.1	17	5.6	7.6	8.1	8.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Vehicle Operation	I	T	55.7	3.6	5.1	52.5	10.7	50.5	16.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	39.6	-2.1	4.1	4.1	4.1	4.1	39.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	9.7	1.4	1.6	1.2	1.0	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Farm	I	T	24.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	30.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	6.6	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Sales - Knowledge Required	I	T	19.8	26.1	1.1	24.0	37.3	17.6	31.2	28.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	52.4	65.9	1.1	17.3	1.1	1.1	20.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	7.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Sales - Knowledge Not Required	I	T	1.2	1.7	1.1	1.1	1.1	1.1	11.6	11.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	65.8	71.1	1.1	1.1	1.1	1.1	72.2	71.5	70.7	70.7	70.7	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	
	S	U	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Clerical	I	T	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	70.8	70.5	22.9	22.1	22.1	22.1	32.9	32.9	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	
	S	U	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Personal Service	I	T	54.9	17.6	49.1	59.4	56.2	54.2	59.1	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	
	S	T	39.6	46.1	1.1	1.1	1.1	1.1	40.5	40.5	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	
	S	U	2.1	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
Entertainment	I	T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	S	T	51.4	1.1	1.1	53.0	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	
	S	U	31.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Protection	E	T	43.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	52.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Education and Training	I	T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	S	T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	S	U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Health	I	T	4.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	10.1	11.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Welfare	E	T	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	5.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Administration and Organization	I	T	1.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	T	11.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	21.7	18.1	21.1	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	
Research and Design	I	T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	S	T	2.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	S	U	16.9	20.3	27.3	18.0	21.3	18.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Total	I	T	18.6	3.8	20.5	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	
	S	T	18.1	11.8	25.2	17.8	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
	S	U	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

(1) E = Elementary
 S = Secondary
 U = University

TABLE 18

MATRIX OF INDUSTRY/100 FACULTY EDUCATIONAL ACHIEVEMENT LEVELS - PERCENTAGE DISTRIBUTION, ONTARIO LABOUR FORCE, FEMALES, 1961

Industry		Educational Achievement		Fishing and Trapping	Mines, Quarries, and Oil Wells	Manufacturing		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Community, Business, and Personal Services		Public Adminis- tration		Total
Ind. Family	Industry	Elementary	Secondary			Manufacturing	Construction	Utilities		Trade						
Total - Specialized	E	59.3	68.2	63.4	57.0	56.2	55.1	55.1	57.2	50.6	62.9	50.2	59.2	59.4	59.4	59.4
	S	40.3	31.7	35.9	42.3	46.2	43.3	43.1	41.8	48.6	36.5	47.2	39.9	39.9	39.9	39.9
	U	6.0	1.1	1.0	0.5	0.6	0.6	1.0	1.0	0.8	0.6	2.6	0.7	0.7	0.7	0.7
Total - Non-specialized	E	62.4	65.8	62.3	63.1	62.0	61.3	63.3	51.8	63.9	63.8	63.7	61.1	61.1	61.1	61.1
	S	35.9	35.9	35.8	35.8	37.5	37.9	36.1	47.5	35.6	35.6	35.6	35.7	38.3	38.3	38.3
	U	1.7	1.7	1.9	0.7	0.5	0.8	0.6	0.7	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Machinery - Specialized	E	*	27.6	68.7	68.7	61.9	-	26.3	58.5	39.9	24.4	21.9	58.4	58.4	58.4	58.4
	S	*	69.3	31.3	31.3	37.3	-	62.8	39.0	59.0	68.8	51.6	38.2	38.2	38.2	38.2
	U	*	2.9	0.8	0.0	0.8	-	12.9	2.5	1.1	26.8	26.8	3.6	3.6	3.6	3.6
Machinery - Non-specialized	E	59.2	57.9	64.2	57.0	61.2	57.3	59.3	52.2	-	57.5	50.9	61.0	61.0	61.0	61.0
	S	46.4	41.7	35.5	42.6	38.3	41.7	40.3	40.4	-	62.0	68.3	58.6	58.6	58.6	58.6
	U	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4	-	0.5	0.7	0.6	0.6	0.6	0.6
Inspection	E	52.9	1.0	10.7	11.7	45.9	24.6	28.7	38.4	19.6	16.5	13.1	40.0	40.0	40.0	40.0
	S	45.1	63.6	70.0	23.9	48.0	35.0	65.9	53.9	66.9	62.5	62.7	52.2	52.2	52.2	52.2
	U	2.0	23.4	18.4	24.7	9.9	11.6	7.7	7.7	15.5	21.0	24.2	7.8	7.8	7.8	7.8
Vehicle Operation	E	37.0	26.9	11.1	11.1	26.1	23.4	28.1	17.1	11.7	24.0	15.5	22.1	22.1	22.1	22.1
	S	70.5	70.1	84.6	84.6	79.5	72.7	70.8	74.6	63.8	71.7	69.7	73.5	73.5	73.5	73.5
	U	2.9	3.0	4.5	4.5	3.6	3.7	3.1	6.6	4.5	3.5	4.6	4.4	4.4	4.4	4.4
Farm	E	56.2	35.8	-	-	57.5	-	42.5	58.0	-	56.7	55.3	51.2	51.2	51.2	51.2
	S	42.5	42.8	-	-	61.3	-	51.1	40.9	-	42.0	43.2	41.5	41.5	41.5	41.5
	U	1.3	1.6	-	-	1.3	-	3.4	1.1	-	1.3	1.3	1.3	1.3	1.3	1.3
Sales - Knowledge Required	E	11.1	-	-	11.1	11.3	11.7	12.3	12.0	-	11.4	11.0	12.4	12.4	12.4	12.4
	S	84.6	-	-	84.6	83.5	80.7	81.7	80.9	77.9	77.7	81.5	80.9	80.9	80.9	80.9
	U	4.5	-	-	4.5	5.2	7.6	8.0	7.1	7.9	5.8	7.5	6.7	6.7	6.7	6.7
Sales - Knowledge Not Required	E	25.0	28.3	-	26.5	26.0	23.0	22.5	23.9	24.5	26.0	28.3	27.5	27.5	27.5	27.5
	S	67.4	69.9	-	70.9	72.9	70.2	73.4	69.7	72.8	69.1	69.9	69.9	69.9	69.9	69.9
	U	7.6	1.8	-	2.6	3.4	6.8	4.1	2.4	2.8	4.9	1.8	2.6	2.6	2.6	2.6
Clerical	E	8.3	5.6	6.2	7.5	7.2	9.7	9.7	8.9	8.0	7.0	7.2	8.0	8.0	8.0	8.0
	S	87.9	88.2	88.7	88.7	87.6	86.6	85.9	87.4	87.4	88.0	87.3	87.2	87.2	87.2	87.2
	U	4.5	3.0	6.0	5.1	4.6	3.7	4.2	4.6	4.6	6.2	5.0	4.8	4.8	4.8	4.8
Personnel Service	E	51.2	57.9	53.7	53.8	53.1	59.8	66.8	48.9	53.1	53.9	55.7	52.6	52.6	52.6	52.6
	S	65.6	41.0	65.1	65.0	65.3	49.6	49.4	43.6	44.9	42.9	51.5	51.5	51.5	51.5	51.5
	U	2.4	1.1	1.1	2.2	1.6	0.9	3.8	1.8	3.5	1.2	1.4	1.3	1.3	1.3	1.3
Entertainment	E	23.4	-	-	2.8	2.8	2.6	9.7	3.0	2.8	8.7	7.1	8.1	8.1	8.1	8.1
	S	59.5	-	-	56.9	56.9	58.8	57.3	56.9	56.9	60.4	59.2	59.0	59.0	59.0	59.0
	U	17.1	-	-	40.3	40.3	31.5	39.7	60.3	39.7	30.9	34.7	31.9	31.9	31.9	31.9
Protection	E	26.2	29.9	5.3	27.2	16.3	25.8	18.7	25.9	20.0	25.0	27.0	24.8	24.8	24.8	24.8
	S	61.6	61.6	43.6	62.6	53.2	61.4	55.0	59.2	55.2	55.0	63.2	60.5	60.5	60.5	60.5
	U	12.0	7.3	51.1	10.2	20.5	18.8	18.3	23.7	23.7	24.0	23.7	14.7	14.7	14.7	14.7
Education and Training	E	-	-	-	39.9	-	32.4	28.2	58.3	-	1.6	15.6	1.8	1.8	1.8	1.8
	S	-	-	-	25.1	-	29.9	37.1	27.6	-	54.3	50.9	54.2	54.2	54.2	54.2
	U	-	-	-	23.8	-	27.7	24.0	14.1	-	44.1	33.7	44.0	44.0	44.0	44.0
Health	E	16.4	23.4	-	3.8	8.8	11.8	15.6	5.5	4.5	12.5	7.4	12.3	12.3	12.3	12.3
	S	53.9	59.5	-	70.4	68.3	72.1	61.5	35.8	64.7	69.8	66.9	69.4	69.4	69.4	69.4
	U	29.7	17.1	-	26.0	22.9	16.1	23.1	57.7	30.8	17.7	23.7	18.3	18.3	18.3	18.3
Welfare	E	-	-	-	-	54.1	-	-	-	-	8.2	4.5	7.8	7.8	7.8	7.8
	S	-	-	-	-	51.1	-	-	-	-	48.1	36.1	48.1	48.1	48.1	48.1
	U	-	-	-	-	61.4	-	-	-	-	43.7	45.5	43.7	43.7	43.7	43.7
Administration and Organization	E	11.1	34.0	8.7	15.9	9.6	12.1	9.6	10.6	16.8	23.4	11.5	15.8	15.8	15.8	15.8
	S	70.9	59.7	60.5	65.5	67.6	72.6	71.7	69.0	70.5	59.3	59.3	65.9	65.9	65.9	65.9
	U	17.9	18.3	30.6	18.6	23.0	15.3	18.7	18.2	18.6	15.1	29.3	18.3	18.3	18.3	18.3
Research and Design	E	5.3	25.7	5.3	5.3	5.3	8.3	4.5	3.0	3.3	5.3	5.3	5.4	5.4	5.4	5.4
	S	32.6	39.6	40.6	63.6	51.9	43.6	45.1	43.6	43.6	62.6	62.6	63.7	63.7	63.7	63.7
	U	51.1	32.3	31.1	31.1	51.1	51.1	68.6	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1
Total	E	54.9	62.7	51.9	12.9	38.7	12.8	12.4	22.1	10.6	28.6	11.2	27.3	27.3	27.3	27.3
	S	41.6	36.3	45.0	81.0	58.3	82.0	82.7	73.6	85.4	58.3	80.6	64.9	64.9	64.9	64.9
	U	1.5	3.0	3.1	6.1	3.0	5.2	6.9	6.5	5.0	13.1	8.4	7.6	7.6	7.6	7.6

(1) E = Elementary
 S = Secondary
 U = University

TABLE A-1

MATRIX OF INDUSTRY/100 FAMILY EDUCATIONAL ACHIEVEMENT LEVELS - CANADA LABOUR FORCE, 1961

		Industry		Fishing and Trapping		Mining, Quarries, and Oil Wells		Manufacturing		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Community, Business, and Personal Services		Public Administration		Total
Type	Family	Educational Level	Agriculture	Forestry	Trapping	Mining, Quarries, and Oil Wells	Manufacturing	Construction	Transportation, Communication, and Other Utilities	Trade	Finance, Insurance, and Real Estate	Community, Business, and Personal Services	Public Administration	Trade	Community, Business, and Personal Services	Public Administration	Total	
Tools - Specialized	E	333	4,975	224	663	44,166	21,585	16,929	8,334	60	26,630	2,298	173,766	2,298	173,766	2,298	173,766	
	S	21	12,593	108	1,009	62,202	13,509	20,117	8,058	161	18,061	1,500	10,884	25,042	660,606	10,861	8,126	
	U	5	1,261	3	233	1,361	489	1,717	314	32	670	1,004	1,257	1,257	1,257	1,257	1,257	
Tools - Non-specialized	E	1,598	4,738	318	10,068	171,321	165,158	65,260	80,935	5,419	45,572	39,264	569,992	3,277	11,569	3,277	11,569	
	S	958	3,165	167	10,525	156,666	106,233	68,081	77,326	3,422	20,884	25,042	660,606	3,069	11,212	3,069	11,212	
	U	45	167	8	432	5,154	3,065	1,483	2,627	115	1,139	853	1,257	1,257	1,257	1,257	1,257	
Machines - Specialized	E	106	868	22,483	28,262	19,576	12,014	4,509	1,661	18	1,023	2,277	1,257	1,257	1,257	1,257	1,257	
	S	54	603	6,348	25,047	16,874	7,721	6,445	1,167	35	2,668	3,069	11,212	11,212	11,212	11,212	11,212	
	U	1	23	145	1,427	193	71	1	1,257	1	1,257	1,257	1,257	1,257	1,257	1,257	1,257	
Machines - Non-specialized	E	322	1,270	2,726	2,560	214,193	8,670	4,137	20,364	250	6,856	3,646	207,495	207,495	207,495	207,495	207,495	
	S	255	998	856	2,590	163,016	9,013	6,446	17,809	466	1,257	1,257	1,257	1,257	1,257	1,257	1,257	
	U	6	27	21	98	4,708	375	157	26	1	1,257	1,257	1,257	1,257	1,257	1,257	1,257	
Inspection	E	510	2,838	50	3,719	25,279	5,355	8,684	3,514	199	1,851	4,656	34,084	34,084	34,084	34,084	34,084	
	S	280	1,593	143	3,555	25,238	5,285	8,593	3,514	199	2,650	11,257	11,257	11,257	11,257	11,257	11,257	
	U	100	363	34	526	7,611	2,966	1,222	1,257	148	1,257	2,292	17,357	17,357	17,357	17,357	17,357	
Vehicle Operation	E	885	4,555	115	3,915	32,152	12,041	24,016	26,192	91	6,282	8,074	179,323	179,323	179,323	179,323	179,323	
	S	683	3,258	167	2,812	27,757	8,746	23,507	20,603	136	6,532	5,810	160,403	160,403	160,403	160,403	160,403	
	U	12	69	11	79	613	157	2,636	655	8	1,179	1,179	1,179	1,179	1,179	1,179	1,179	
Farm	E	361,138	95	-	1	453	4	43	507	1	1,306	657	360,026	360,026	360,026	360,026	360,026	
	S	242,750	54	-	1	231	3	37	255	1	569	360	264,260	264,260	264,260	264,260	264,260	
	U	10,888	3	-	-	11	-	2	11	-	10,888	10,888	10,888	10,888	10,888	10,888	10,888	
Sales - Knowledge Required	E	36	26	-	124	12,115	233	2,420	8,691	3,683	567	269	28,183	28,183	28,183	28,183	28,183	
	S	73	81	-	372	26,095	876	4,502	21,757	31,797	2,518	1,053	87,016	87,016	87,016	87,016	87,016	
	U	3	11	-	49	2,027	340	423	2,100	7,947	456	1,257	1,257	1,257	1,257	1,257	1,257	
Sales - Knowledge Not Required	E	133	17	-	32	7,201	266	425	61,350	77	2,393	93	71,787	71,787	71,787	71,787	71,787	
	S	461	65	-	163	37,559	1,216	1,849	182,455	321	6,736	249	211,065	211,065	211,065	211,065	211,065	
	U	64	10	-	32	7,802	238	1,257	1,257	60	876	12,257	21,705	21,705	21,705	21,705	21,705	
Clerical	E	114	403	16	777	15,125	1,322	17,591	15,926	9,562	9,930	10,018	1,141	1,141	1,141	1,141	1,141	
	S	1,202	2,540	151	1,260	12,323	12,323	12,323	16,050	10,253	12,253	93,757	93,757	93,757	93,757	93,757	93,757	
	U	369	369	10	1,132	14,003	1,796	10,973	11,166	10,253	14,253	9,841	16,257	16,257	16,257	16,257	16,257	
Personnel Services	E	6,492	2,281	103	655	4,486	846	6,469	6,210	2,300	189,209	8,828	2,910	2,910	2,910	2,910	2,910	
	S	4,394	1,587	68	666	3,363	575	5,125	5,170	1,713	162,263	1,942	191,755	191,755	191,755	191,755	191,755	
	U	457	92	3	25	182	33	376	140	140	5,845	483	7,809	483	483	483	483	
Entertainment	E	7	-	-	-	259	-	188	59	1	3,266	184	-	-	-	-	-	
	S	22	-	-	-	3	2,119	6	1,073	25	12,976	441	17,137	441	441	17,137	17,137	
	U	14	-	-	-	3	1,172	3	572	20	5,342	175	7,707	175	175	7,707	7,707	
Prestation	E	57	657	81	387	1,880	632	1,701	876	284	3,993	10,039	1,343	1,343	1,343	1,343	1,343	
	S	74	206	402	554	3,660	823	3,603	1,261	411	6,022	37,556	6,732	6,732	6,732	6,732	6,732	
	U	7	69	22	32	441	76	193	102	38	457	1,305	1,305	1,305	1,305	1,305	1,305	
Education and Training	E	-	-	-	-	33	-	46	58	9	4,108	268	-	-	-	-	-	
	S	-	-	-	-	77	-	104	81	16	89,540	89,540	81	81	81	81	81	
	U	-	-	-	-	69	-	81	63	9	10,515	893	8,111	8,111	8,111	8,111	8,111	
Health	E	115	65	34	69	659	30	115	159	11	27,323	162	-	-	-	-	-	
	S	340	59	13	163	2,039	65	279	755	92	117,253	2,766	1,257	1,257	1,257	1,257	1,257	
	U	978	6	1	56	1,113	10	119	6,219	111	33,056	2,171	1,257	1,257	1,257	1,257	1,257	
Welfare	E	1	-	-	-	2	-	-	-	-	2,435	155	-	-	-	-	-	
	S	4	-	-	-	20	-	-	-	-	12,831	1,270	-	-	-	-	-	
	U	23	-	-	-	21	-	-	-	-	25,667	1,652	-	-	-	-	-	
Administration and Organization	E	431	2,031	123	1,033	11,268	10,684	5,617	48,127	1,725	16,613	2,206	1,257	1,257	1,257	1,257	1,257	
	S	994	6,045	279	1,252	50,606	22,576	116,611	26,279	50,978	20,184	2,206	1,257	1,257	1,257	1,257	1,257	
	U	397	1,279	137	1,017	26,022	4,580	7,693	43,242	10,335	31,794	13,114	-	-	-	-	-	
Research and Design	E	26	976	15	96	907	39	335	110	65	603	513	-	-	-	-	-	
	S	87	1,255	52	1,110	11,013	1,160	3,596	1,218	640	6,761	4,888	-	-	-	-	-	
	U	620	760	153	6,622	21,972	8,501	7,882	2,544	721	10,860	12,421	-	-	-	-	-	
Total	E	375,351	71,049	26,170	52,349	360,806	223,312	208,898	295,824	24,138	236,581	94,976	-	-	-	-	-	
	S	135,059	32,728	8,153	58,020	736,107	160,330	135,192	603,027	172,748	641,040	221,519	-	-	-	-	-	
	U	13,173	3,451	339	9,737	94,973	14,582	37,764	87,003	20,095	239,129	48,884	-	-	-	-	-	

(1) E = Elementary
 S = Secondary
 U = University

TABLE A-2

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENTS LEVELS, CANADA LABOUR FORCE, MALES, 1961

		Industry		Mining and Quarrying		Mines, Quarries, and Oil Wells		Manufacturing		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Community, Business, and Personal Services		Public Administration		Total
	Job Family	Elementary	Agriculture	Forestry	Timbering	Construction	Trade	Transportation	Communication	Utilities	Trade	Finance	Community	Business	Personal	Services	Total	
Tools - Specialized	E	303	49,530	221	661	34,643	24,570	16,857	4,454	43	7,212	2,037	150,500					
	S	84	12,474	105	1,005	36,259	12,976	20,037	5,263	164	6,293	3,363	107,160					
	U	3	641	3	226	1,044	687	1,713	249	13	720	461	72,511					
Tools - Non-specialized	E	1,453	4,626	286	9,986	158,015	144,801	64,746	77,498	3,664	25,633	17,811	530,608					
	S	873	3,079	148	10,487	148,024	104,003	47,578	76,253	2,537	27,346	24,242	441,585					
	U	41	164	7	140	3,056	3,056	1,672	2,381	101	1,039	842	14,491					
Machinery - Specialized	E	108	866	27,384	28,287	18,327	12,016	4,681	1,427	12	845	3,198	89,031					
	S	56	599	6,000	25,641	18,255	7,731	6,193	1,036	34	2,438	3,405	68,376					
	U	1	23	145	1,457	678	193	419	63	1	1,106	307	4,263					
Machinery - Non-specialized	E	187	1,261	1,478	2,551	126,487	8,194	3,931	15,138	250	6,277	3,571	170,450					
	S	135	292	832	2,448	116,580	5,953	4,200	16,409	466	6,235	4,652	155,928					
	U	5	27	21	96	6,273	173	165	24	243	193	5,922						
Inspection	E	239	2,813	48	3,707	21,131	5,532	8,508	2,084	191	1,032	4,382	59,705					
	S	493	1,893	134	3,623	32,910	8,431	22,522	6,153	3,761	10,882	112,103						
	U	86	139	30	495	7,161	942	2,918	1,208	161	950	2,091	18,160					
Vehicle Operation	E	970	4,655	115	3,916	32,081	12,835	72,819	36,059	85	6,125	8,060	179,724					
	S	666	3,253	167	2,811	27,572	8,730	72,369	39,035	90	5,589	3,194	159,211					
	U	11	69	11	79	603	137	2,611	648	5	558	127	4,682					
Farm	E	319,221	89	-	1	407	4	61	433	1	1,011	636	331,482					
	S	210,081	50	-	0	17	37	22	1,251	1	559	510	212,208					
	U	3,891	3	-	0	10	0	2	10	0	28	19	9,492					
Sales - Knowledge Required	E	33	25	-	123	11,932	210	2,398	8,157	3,233	469	257	38,745					
	S	46	19	-	343	21,862	854	4,341	18,386	29,232	1,766	937	77,779					
	U	2	11	-	49	1,894	128	414	1,289	7,597	401	155	12,368					
Sales - Knowledge Not Required	E	87	14	-	26	3,187	238	335	26,179	46	719	64	32,467					
	S	266	39	-	149	31,281	1,126	1,376	91,448	233	2,864	120	132,311					
	U	47	9	-	31	7,537	222	13,119	44	819	10	22,165						
Clerical	E	29	366	11	553	8,510	891	11,056	6,434	2,585	2,714	5,130	38,259					
	S	244	1,656	66	3,701	51,449	8,277	63,573	37,087	25,417	26,451	36,802	26,722	45,580	46,332			
	U	43	330	32	931	9,807	1,306	6,625	6,219	8,103	6,578	8,000	6,578					
Personnel Service	E	5,990	1,787	86	495	2,724	641	5,037	1,705	1,255	53,206	7,026	39,953					
	S	3,988	1,326	53	222	1,838	625	3,593	1,118	829	42,580	4,496	45,590					
	U	438	82	3	21	329	39	264	88	37	2,564	337	6,032					
Entertainment	E	6	-	-	263	-	118	53	1	2,875	185	3,440						
	S	19	-	-	3	1,792	727	331	20	7,070	265	10,283						
	U	13	-	-	924	3	387	148	17	2,540	128	4,170						
Protection	E	56	467	81	386	2,446	322	1,651	839	377	3,857	9,780	21,903					
	S	73	655	402	552	5,416	832	3,177	1,169	392	5,665	36,920	55,484					
	U	7	68	22	31	76	184	78	29	336	3,612	7,459						
Education and Training	E	-	-	-	23	-	35	18	6	1,246	178	1,575						
	S	-	-	-	59	-	88	48	15	13,163	563	13,914						
	U	-	-	-	58	-	89	41	8	49,188	640	10,202						
Health	E	99	45	16	53	311	25	86	98	3	8,921	333	10,610					
	S	192	57	32	87	987	61	107	492	3	16,925	669	7,741					
	U	955	6	1	40	733	5	55	3,039	49	28,871	1,270	1,485					
McMarc	E	1	-	-	2	-	-	-	-	-	1,159	209	1,213					
	S	4	-	-	16	-	-	-	-	-	5,204	1,213	5,311					
	U	23	-	-	15	-	-	-	-	-	19,983	1,016	21,072					
Administration and Organization	E	414	2,800	126	1,021	10,768	20,379	5,125	63,388	1,249	8,910	1,977	44,7					
	S	889	4,012	324	1,208	21,391	20,376	88,366	24,583	37,936	18,553	1						
	U	370	1,271	125	1,065	26,723	4,592	8,592	38,557	9,921	28,735	12,118						
Research and Design	E	23	970	16	89	843	98	303	94	56	500	488	1,946					
	S	98	1,263	49	1,072	10,640	1,139	3,379	1,083	568	5,916	4,635	1,942					
	U	59	746	131	4,578	21,356	2,549	7,353	2,186	637	9,815	9,906	1,271					
Total	E	329,285	70,268	16,060	51,776	433,411	221,893	198,570	227,084	13,042	142,723	85,205	1,799,318					
	S	219,010	31,670	8,742	54,182	373,836	181,685	283,997	204,842	85,047	213,453	155,205	2,191,566					
	U	12,524	3,371	522	9,424	56,810	14,403	33,673	73,508	24,982	154,583	36,135	4,512,328					

(1) E = Elementary
 S = Secondary
 U = University

TABLE 4-1

MATRIX OF INSTITUTION/FAMILY EDUCATIONAL ACHIEVEMENT LEVELS - CANADA LABOUR FORCE, FEMALES, 1961

		Industries		Fishing and Trapping		Mines, Quarries, and Oil Wells		Manufacturing		Construction		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Commerce, Business, and Personal Services		Public Administration		Total		
	Institution	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Families	Agriculture	Total
Tools - Specialized	E	10	65	3	2	9,532	16	72	1,780	17	19,619	281	11,265	17	1,796	223	1,796	223	1,796	223	1,796	223
	S	7	31	1	1	6,562	13	60	2,785	17	11,752	102	11,752	102	1,796	102	1,796	102	1,796	102	1,796	102
	U	0	2	-	3	98	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tools - Non-specialized	E	345	115	36	102	13,705	358	886	3,427	177	9,920	424	31,496	424	19,745	424	19,745	424	19,745	424	19,745	424
	S	83	66	19	58	7,682	237	503	1,061	148	5,539	100	19,745	100	19,745	100	19,745	100	19,745	100	19,745	100
	U	4	3	1	1	98	6	11	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Machines - Specialized	E	-	2	99	14	3,249	-	22	319	1	178	25	3,763	25	3,763	25	3,763	25	3,763	25	3,763	25
	S	-	5	45	7	1,922	-	54	111	1	159	84	2,533	84	2,533	84	2,533	84	2,533	84	2,533	84
	U	-	-	-	-	33	-	7	6	-	150	13	211	13	211	13	211	13	211	13	211	13
Machines - Non-specialized	E	175	9	48	29	87,706	84	237	5,064	-	581	75	92,969	75	92,969	75	92,969	75	92,969	75	92,969	75
	S	119	6	25	21	40,155	60	142	3,020	-	292	68	52,668	68	52,668	68	52,668	68	52,668	68	52,668	68
	U	1	-	-	-	436	1	1	24	-	6	-	678	-	678	-	678	-	678	-	678	-
Inspection	E	251	7	2	32	4,157	3	174	220	8	229	119	5,381	119	5,381	119	5,381	119	5,381	119	5,381	119
	S	230	8	73	65	4,395	9	458	275	10	810	26	7,504	26	7,504	26	7,504	26	7,504	26	7,504	26
	U	15	6	29	670	2	50	114	7	303	200	1,197	200	1,197	200	1,197	200	1,197	200	1,197	200	
Vehicle Operation	E	2	2	-	-	71	5	194	22	6	167	1	600	1	600	1	600	1	600	1	600	1
	S	17	5	2	2	175	16	518	359	47	463	39	1,842	39	1,842	39	1,842	39	1,842	39	1,842	39
	U	1	-	-	-	8	1	22	47	2	21	-	106	-	106	-	106	-	106	-	106	-
Farm	E	61,817	6	-	-	46	-	1	74	-	95	9	62,002	9	62,002	9	62,002	9	62,002	9	62,002	9
	S	31,859	6	-	-	36	-	1	52	-	49	2	31,031	2	31,031	2	31,031	2	31,031	2	31,031	2
	U	976	-	-	-	1	-	-	-	-	2	-	981	-	981	-	981	-	981	-	981	-
Sales - Knowledge Required	E	3	-	-	1	292	3	24	533	0	99	12	1,418	12	1,418	12	1,418	12	1,418	12	1,418	12
	S	26	5	9	9	2,151	22	151	3,521	2,675	732	66	9,245	66	9,245	66	9,245	66	9,245	66	9,245	66
	U	1	-	-	1	133	2	12	251	-	55	7	772	7	772	7	772	7	772	7	772	7
Sales - Knowledge Not Acquired	E	66	2	-	6	3,013	46	80	3,171	29	1,476	68	38,940	68	38,940	68	38,940	68	38,940	68	38,940	68
	S	39	6	35	35	5,048	132	273	88,906	88	3,830	114	95,724	114	95,724	114	95,724	114	95,724	114	95,724	114
	U	18	-	-	-	265	12	14	2,968	-	235	3	3,520	3	3,520	3	3,520	3	3,520	3	3,520	3
Clerical	E	85	57	8	233	6,815	631	6,530	9,492	7,137	7,216	4,888	62,106	4,888	62,106	4,888	62,106	4,888	62,106	4,888	62,106	4,888
	S	958	712	88	3,399	77,565	7,435	59,769	9,245	81,276	87,001	475,815	475,815	475,815	475,815	475,815	475,815	475,815	475,815	475,815	475,815	475,815
	U	53	40	6	201	6,186	430	2,546	-	-	3,281	-	2,777	-	2,777	-	2,777	-	2,777	-	2,777	-
Personal Service	E	482	497	18	160	1,773	207	1,460	4,105	1,052	145,003	1,802	155,597	1,802	155,597	1,802	155,597	1,802	155,597	1,802	155,597	1,802
	S	406	361	15	132	1,506	150	1,537	4,255	884	119,380	119,380	123,565	119,380	123,565	119,380	123,565	119,380	123,565	119,380	123,565	119,380
	U	19	9	6	53	4	110	148	83	3,281	-	2,777	-	2,777	-	2,777	-	2,777	-	2,777	-	
Entertainment	E	1	-	-	-	17	-	71	0	-	871	19	986	19	986	19	986	19	986	19	986	19
	S	2	-	-	-	337	-	260	1,404	5	5,904	68	6,656	68	6,656	68	6,656	68	6,656	68	6,656	68
	U	1	-	-	-	230	-	386	49	3	3,002	3	3,580	3	3,580	3	3,580	3	3,580	3	3,580	3
Protection	E	1	5	-	1	1	1	10	38	2	136	29	490	29	490	29	490	29	490	29	490	29
	S	10	8	2	8	64	2	28	32	19	318	93	1,193	93	1,193	93	1,193	93	1,193	93	1,193	93
	U	1	-	1	1	29	-	11	24	7	121	93	288	93	288	93	288	93	288	93	288	93
Education and Training	E	-	-	-	-	11	-	11	39	-	2,863	90	3,017	90	3,017	90	3,017	90	3,017	90	3,017	90
	S	-	-	-	-	18	-	17	15	1	67,384	1	67,384	1	67,384	1	67,384	1	67,384	1	67,384	1
	U	-	-	-	-	13	-	12	22	1	55,327	1	55,327	1	55,327	1	55,327	1	55,327	1	55,327	1
Health	E	16	1	-	4	168	5	23	11	6	18,401	209	18,978	209	18,978	209	18,978	209	18,978	209	18,978	209
	S	68	1	-	55	1,071	23	172	1,154	84	18,401	209	18,978	209	18,978	209	18,978	209	18,978	209	18,978	209
	U	23	-	-	18	358	5	64	1,140	84	23,785	404	27,674	404	27,674	404	27,674	404	27,674	404	27,674	404
Welfare	E	-	-	-	-	-	-	-	-	-	-	-	1,243	-	1,243	-	1,243	-	1,243	-	1,243	-
	S	-	-	-	-	-	-	-	-	-	-	-	5,684	-	5,684	-	5,684	-	5,684	-	5,684	-
	U	-	-	-	-	-	-	-	-	-	-	-	630	-	630	-	630	-	630	-	630	-
Administration and Organization	E	37	11	1	15	390	45	493	4,731	73	5,705	223	10,267	223	10,267	223	10,267	223	10,267	223	10,267	223
	S	103	20	4	44	3,363	263	3,945	3,454	1,047	12,027	1	62,710	1	62,710	1	62,710	1	62,710	1	62,710	1
	U	27	8	2	12	1,298	84	791	1,147	1,047	3,038	1,047	11,395	1,047	11,395	1,047	11,395	1,047	11,395	1,047	11,395	1,047
Research and Design	E	1	4	-	3	66	1	33	16	9	103	5	1,071	5	1,071	5	1,071	5	1,071	5	1,071	5
	S	9	12	3	37	366	10	217	1,153	21	846	84	2,501	84	2,501	84	2,501	84	2,501	84	2,501	84
	U	10	12	4	64	620	12	230	1,147	21	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	
Total	E	43,076	782	210	572	119,675	1,610	10,319	65,750	1,79	233,758	1,79	489,187	1,79	489,187	1,79	489,187	1,79	489,187	1,79	489,187	1,79
	S	34,049	1,266	211	3,850	162,371	8,665	68,196	220,184	87,441	427,557	87,441	1,069,193	87,441	1,069,193	87,441	1,069,193	87,441	1,069,193	87,441	1,069,193	87,441
	U	1,149	80	17	313	8,161	559	4,071	13,975	1,74	109,352	1,74	146,820	1,74	146,820	1,74	146,820	1,74	146,820	1,74	146,820	1,74

(1) E = Elementary
(2) S = Secondary
(3) U = University

TABLE A-6

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS, PERCENTAGE DISTRIBUTION, CANADA LABOUR FORCE, 1981

Industry/ Job Family		Educational Level (%)										Total	
		Agriculture	Forestry	Fishing and Wildlife	Mines, Quarries, and Oil Wells	Manufacturing	Construction	Transportation, Communication, and Other Utilities	Finance, Insurance, and Real Estate	Community, Business, and Personal Services	Public Administration		
Tools - Specialized	E	77.0	79.1	67.1	70.0	49.6	62.0	36.2	47.5	25.7	58.4	1.1	3.3
	S	22.3	20.9	31.9	33.0	50.4	37.9	52.8	52.5	74.3	41.9	1.7	1.7
	U	0.7	0.7	0.6	12.2	1.7	1.3	3.7	5.1	5.1	10.2	1.0	1.0
Tools - Non-specialized	E	4.5	59.0	60.3	47.9	31.6	57.5	37.0	76.2	60.5	56.7	60.0	5.1
	S	10.8	23.8	19.7	50.7	67.0	41.3	41.3	46.2	36.2	39.8	38.6	8.1
	U	0.7	3.8	1.7	1.6	1.6	1.2	1.3	1.5	1.1	1.5	1.3	1.0
Machinery - Specialized	E	1	0.1	77.1	33.1	32.7	60.0	39.6	37.5	7.0	0.7	0.7	0.5
	S	33.5	40.0	24.5	36.6	41.4	38.7	56.7	60.1	5.5	11.9	9.4	11.6
	U	0.6	0.6	0.3	2.6	1.9	1.0	3.7	2.5	2.5	2.4	0.7	0.7
Machinery - Non-specialized	E	5.2	55.3	25.6	48.1	55.1	54.4	47.1	51.1	33.3	49.9	1.1	3.3
	S	15.7	31.5	23.8	52.0	42.7	50.5	48.4	61.1	6.1	48.3	56.1	5.6
	U	1.1	3.2	3.0	1.6	1.2	1.2	1.5	1.1	3.2	1.0	2.3	1.2
Inspection	E	8.4	58.1	22.2	46.8	28.0	37.1	25.1	28.2	22.6	17.6	2.4	2.0
	S	4.1	39.0	62.9	46.7	62.6	58.3	66.5	61.2	61.0	44.9	6.7	12.0
	U	7.5	1.9	16.4	1.6	8.9	3.6	8.6	10.6	16.6	17.5	12.4	9.0
Vehicle Operation	E	4.6	57.7	39.1	57.7	52.1	54.1	49.2	51.6	49.6	48.8	52.1	2.1
	S	40.7	7.4	97.1	1.3	45.9	40.5	41.1	40.1	40.1	48.6	51.1	40.7
	U	0.7	0.9	3.7	1.2	1.0	3.7	1.7	1.0	3.0	3.0	1.3	1.0
Farm	E	56.7	62.6	+	47.6	65.3	54.2	62.6	54.3	54.3	60.0	1.1	58.8
	S	33.1	15.6	+	31.2	34.7	34.7	39.9	33.1	33.1	23.0	3.3	39.6
	U	1.2	1.9	+	2.6	1.5	3.3	2.3	1.0	3.0	1.7	1.0	1.0
Sales - Knowledge Required	E	22.6	21.0	+	22.7	31.8	18.7	32.9	29.7	6.5	10.0	18.2	21.9
	S	60.8	60.8	+	68.2	62.9	20.1	61.3	66.8	73.1	71.1	10.6	67.7
	U	0	0	+	6.1	5.3	11.2	5.8	6.5	16.3	12.9	11.1	10.4
Sales - Knowledge Not Required	E	10.6	10.1	+	10.1	11.8	15.8	16.1	23.6	17.2	2.2	21.4	21.9
	S	10.1	7.3	+	7.1	71.3	20.7	70.8	30.2	72.6	68.7	70.1	70.3
	U	0	0	+	10.6	10.6	13.7	12.9	8.2	10.7	8.3	7.0	7.0
Clerical	E	6.1	12.6	8.6	8.9	9.6	8.8	11.6	1.1	2.9	7	8.4	9.3
	S	6.1	25.5	61.6	24.3	11.9	80.8	81.2	82.9	83.9	82.2	82.2	82.2
	U	0	11.8	9.9	12	9.8	10.6	7.2	3.0	3.0	8.1	8.1	8.1
Personal Service	E	57.2	52.7	59.6	72.1	58.0	8.1	54.5	50.7	51	54.1	9.6	4.3
	S	40.8	40.1	30.6	40.7	42.7	8.3	42.2	42.2	41.2	44.7	39.1	23.9
	U	0	2.3	3.8	2.2	2.1	3.1	2.1	1.1	1.6	2.2	1.0	1.0
Entertainment	E	18.3	-	-	2.9	7.2	2.2	10.1	3.8	2.9	4.6	22.9	2.2
	S	72.2	-	-	44.4	59.7	53.1	58.5	60.7	5.7	7.3	51.4	51.4
	U	3.5	-	-	6.0	33.0	11.1	3.5	3.7	7.6	23.9	36.6	3.6
Protection	E	41.1	39.9	32.1	14.6	19.7	47.1	32	49.1	5.7	5.7	2.5	27.1
	S	52.2	7.7	29.5	17.0	55.8	5.7	52	52	5.7	7.3	2.6	2.6
	U	0	3.9	4.4	3.2	4.5	5.3	3.1	2.1	1.1	1.6	1.1	1.0
Education and Training	E	-	-	-	-	10.5	19.9	23.6	2.2	2.2	1.0	7.4	7.4
	S	-	-	-	-	42.6	45.2	20.6	50.5	50.5	42.6	5.6	52.0
	U	-	-	-	-	38.7	-	34.9	23.2	23.2	53.2	5.2	52.0
Health	E	8.6	41.2	49.5	23.2	12.7	20.4	22.2	2.2	1.0	13.6	10.3	1.3
	S	41.0	5.3	5.5	55.0	7.1	1.1	3.8	64.2	4.1	5.5	1.1	1.1
	U	3	5.2	5.3	24.6	10.6	9.9	23.0	67.1	51.9	7.1	1.0	1.0
Welfare	E	2.1	-	-	-	8.0	-	-	-	-	3.3	-	2
	S	1.1	-	-	-	4.5	-	-	-	-	6.7	-	2.0
	U	0.6	-	-	-	16.6	-	-	-	-	6.7	-	2.0
Administration and Organization	E	27.6	26.6	22.2	22.1	12.0	20.3	14.7	21.1	1.6	1.6	1.6	1.6
	S	49.6	49.7	51.3	52.1	40.3	2	45.3	5.3	5.3	5.3	5.3	5.3
	U	21.8	15.7	25.1	22.7	27.7	12.1	50.8	21.1	5.6	5.6	5.6	24.6
Research and Design	E	1.3	3.1	7.2	3.1	2.7	2.6	2.0	1.8	1.6	1	1.1	1.1
	S	16.8	57.0	29.6	13.1	32.5	29.8	31.2	11.5	22.8	37.2	1.6	37.2
	U	82.1	25.4	66.9	74.1	14.8	87.6	65.9	11.7	5.6	5.6	5.6	5.6
Total	E	42.3	66.1	71.5	43.4	40.4	4.1	14.4	14.7	1	28.4	7.1	7.1
	S	49.6	30.1	25.0	46.1	52.6	11.1	56.8	11.1	71.1	5.6	5.6	7.1
	U	24.1	2.2	1.3	8	6.8	1.1	5.8	1.1	1.1	1.1	1.1	1.1

(1) E = Elementary
 S = Secondary
 U = University

TABLE A-5

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS, PERCENTAGE DISTRIBUTION, CANADA LABOUR FORCE, MARCH, 1961

Industry		Education (1)		Fishing		Mining, Quarries, and Oil Wells		Manufacturing		Transportation, Communication, and Utilities		Trade		Construction		Agriculture		Public Adminis- tration		Total	
				Agriculture	Forestry	Fishing	Trucking	Manufacturing	Construction	Utilities	Trade	Trade	Trade	Construction	Trade	Construction	Trade	Construction	Trade	Total	
Tools - Specialized	E	27.6	29.1	67.4	34.6	40.0	42.3	37.9	32.3	36.7	35.9	37.7	37.7	35.9	35.9	35.9	35.9	35.9	35.9	35.9	
	S	21.6	22.0	51.8	33.1	50.2	50.2	48.8	43.2	42.8	39.4	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	
	U	2.0	0.3	0.8	12.0	1.7	2.0	1.7	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Tools - Non-specialized	E	6.4	58.9	7.4	7.8	59.2	7	36.1	36.1	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	
	S	38.9	39.2	1.3	5.1	67.7	67.7	41.3	41.3	41.3	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	
	U	1.7	1.7	2.0	1.6	1.2	1.2	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Machines - Specialized	E	67.5	58.2	72.1	71.6	53.1	60.1	42.7	37	37	37	37	37	37	37	37	37	37	37	37	
	S	1.8	4.3	1.8	1.8	1.8	1.8	38	38	38	38	38	38	38	38	38	38	38	38	38	
	U	1.6	1.5	0.8	2.6	2.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Machines - Non-specialized	E	51.1	5.1	75.6	40.0	53.4	59.4	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	
	S	47.1	4.5	23.6	50.2	47.1	47.1	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	
	U	1.0	1.0	0.6	1.6	1.7	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Inspection	E	36.9	58.2	22.6	57.6	26.0	37.1	25.1	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	
	S	52.9	38.4	2.3	49.3	62.3	59.1	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	62.3	
	U	19.1	2.6	2.6	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
Vehicle Operation	E	59.1	57.6	39.3	57.5	51.2	59.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	69.1	
	S	45.1	41.1	41.1	41.1	41.1	41.1	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	
	U	1.0	1.0	1.0	1.0	1.0	1.0	0.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
Farm	F	59.1	63.0	61.0	66.6	59.1	59.1	60.8	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	62.1	
	S	21.1	21.1	21.1	25.6	22.1	22.1	20.1	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	
	U	1.8	1.9	2.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Sales - Knowledge Required	E	39.8	27.1	-	21.0	31	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	
	S	52.9	60.6	-	67.0	61.1	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	
	U	2.3	9.5	-	9.1	11.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	
Sales - Knowledge Not Required	E	17.1	17.2	-	17.2	11.8	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
	S	70.1	71.0	-	72.1	71.1	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	70.6	
	U	19.1	11.8	-	15.2	17.1	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	
Clerical	E	9	18.6	15.1	10.1	2.2	19.5	19.5	13.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	
	S	77.1	71.0	71.0	72.2	71.1	71.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	
	U	16.2	16.2	16.2	17.7	17.7	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	
Personal Service	E	7	17.2	14.8	18.6	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	
	S	45.4	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	
	U	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Entertainment	E	5.9	-	-	2.8	8.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
	S	51.8	-	-	5.0	60.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
	U	3.1	-	-	2.2	31.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
Protection	E	21.6	31.1	16.1	33.8	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	
	S	51.6	51.6	39.1	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	
	U	1.0	1.0	4.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
Education and Training	E	-	-	-	-	16.1	-	18.3	-	18.3	-	18.3	-	18.3	-	18.3	-	18.3	-	18.3	
	S	-	-	-	-	42.8	-	45.8	-	45.8	-	45.8	-	45.8	-	45.8	-	45.8	-	45.8	
	U	-	-	-	-	41.1	-	35.9	-	35.9	-	35.9	-	35.9	-	35.9	-	35.9	-	35.9	
Health	E	8.0	14.0	14.5	14.5	-	15.2	-	15.2	-	15.2	-	15.2	-	15.2	-	15.2	-	15.2	-	
	S	12.1	53.4	45.2	47.7	-	46.1	-	46.1	-	46.1	-	46.1	-	46.1	-	46.1	-	46.1	-	
	U	1.2	1.2	1.2	1.2	-	21.6	-	20.7	-	20.7	-	20.7	-	20.7	-	20.7	-	20.7	-	
Welfare	E	1.2	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	
	S	12.1	-	-	-	-	48.8	-	-	-	-	-	-	-	-	-	-	-	-	-	
	U	0.1	-	-	-	-	46.0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Administration and Organization	E	24.9	14.1	7.3	14.6	-	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	
	S	53.1	12.2	53.1	2.2	-	4.1	-	4.1	-	4.1	-	4.1	-	4.1	-	4.1	-	4.1	-	
	U	12.1	18.7	22.0	22.7	-	7.9	-	7.9	-	7.9	-	7.9	-	7.9	-	7.9	-	7.9	-	
Research and Design	E	32.7	7.2	1.8	4.6	-	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	-	1.2	
	S	12.2	2.3	1.5	2.1	-	3.2	-	3.2	-	3.2	-	3.2	-	3.2	-	3.2	-	3.2	-	
	U	65.1	25.3	67.2	79.2	-	8.2	-	8.2	-	8.2	-	8.2	-	8.2	-	8.2	-	8.2	-	
Total	E	46.7	16.9	73.8	66.9	49.6	55.1	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	
	S	46.7	26.9	24.7	46.9	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2
	U	46.7	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9

(1) E = Elementary
S = Secondary
U = University

TABLE A-6

MATRIX OF INDUSTRY/JOB FAMILY EDUCATIONAL ACHIEVEMENT LEVELS, PERCENTAGE DISTRIBUTION, CANADA LABOUR FORCE, FAMILIES, 1961

Industry Job Family		Fishing and Trapping			Mines, Quarries, and Oil Wells		Manufacturing		Construction		Transportation, Communication, and Other Utilities		Finance, Insurance, and Real Estate		Community, Business, and Personal Service		Public Adminis- tration		Total
		Elementary	Secondary	University	Agriculture	Forestry	Trade	Manufacturing	Construction	Trade	Manufacturing	Construction	Trade	Manufacturing	Construction	Trade	Manufacturing	Construction	
Tools - Specialized	E	59.6	66.5	65.8	24.6	37.8	52.9	53.2	57.6	68.1	61.9	53.6	60.1	61.9	53.6	60.1	61.9	60.1	
	S	60.2	62.1	31.9	33.9	42.1	44.6	43.2	44.0	43.9	49.6	37.5	44.0	39.2	44.0	39.2	44.0	39.2	
	U	59.4	54.6	3.6	32.3	2.6	3.6	2.3	2.8	2.3	2.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
Tools - Non-specialized	E	62.4	62.5	52.4	63.2	60.1	60.5	53.3	52.6	64.0	63.8	51.8	52.7	62.0	52.7	52.7	52.7	62.0	
	S	59.9	55.8	35.7	36.0	36.6	38.5	35.9	44.3	35.5	35.5	35.7	35.7	37.4	35.7	37.4	35.7	37.4	
	U	1.7	1.7	1.9	36.0	0.5	1.0	0.8	0.7	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
Machines - Specialized	E	-	27.6	68.7	68.7	62.5	-	26.2	58.6	39.0	31.9	27.5	58.7	-	-	-	-	-	
	S	-	69.5	31.3	31.3	36.9	-	65.2	38.6	59.0	41.1	60.5	38.0	-	-	-	-	-	
	U	-	2.9	0.0	0.0	0.6	-	8.5	2.8	1.1	27.0	12.0	-	-	-	-	-	-	
Machines - Non-specialized	E	59.3	57.9	66.0	57.3	64.2	58.1	60.2	59.5	-	59.5	52.7	52.7	63.9	-	-	-	-	
	S	60.3	41.7	33.8	42.3	35.5	41.3	39.4	60.1	-	60.1	66.7	66.7	35.8	-	-	-	-	
	U	0.4	0.4	0.2	0.4	0.3	0.4	0.4	0.4	-	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
Inspection	E	51.1	27.4	14.0	11.1	45.0	23.2	25.7	35.2	18.6	16.1	13.6	38.2	-	-	-	-	-	
	S	65.9	58.3	62.0	63.4	49.9	64.9	67.0	59.5	64.3	62.6	62.6	53.3	-	-	-	-	-	
	U	3.0	16.3	24.0	25.3	5.1	11.9	7.3	9.6	14.9	21.3	23.8	-	-	-	-	-	-	
Vehicle Operation	E	27.1	28.6	11.1	38.2	28.0	26.9	26.4	17.7	11.4	23.7	15.6	23.2	-	-	-	-	-	
	S	89.9	70.4	86.4	78.9	68.9	69.9	70.5	76.2	81.1	71.1	79.5	72.7	-	-	-	-	-	
	U	3.0	3.0	4.3	3.8	3.1	3.2	3.1	6.2	6.3	3.2	4.5	4.1	-	-	-	-	-	
Farm	E	56.0	56.3	-	42.5	57.3	42.5	57.7	57.8	-	57.0	56.1	56.0	-	-	-	-	-	
	S	42.7	42.3	-	56.1	41.5	56.1	41.1	41.1	-	41.7	52.3	42.7	-	-	-	-	-	
	U	1.3	1.4	-	3.6	1.2	3.4	1.2	1.1	-	1.3	1.4	1.3	-	-	-	-	-	
Sales - Knowledge Required	E	11.1	9.6	-	10.3	11.3	11.9	12.1	12.1	12.1	14.2	11.2	11.1	12.6	-	-	-	-	
	S	84.4	83.8	-	84.1	83.6	80.7	82.0	80.9	77.9	82.6	81.9	80.9	-	-	-	-	-	
	U	4.5	6.6	-	5.6	5.1	7.4	5.9	7.0	7.9	6.2	7.0	6.7	-	-	-	-	-	
Sales - Knowledge Not Required	E	25.5	28.0	-	27.7	26.2	26.2	23.8	27.9	23.9	26.2	26.3	27.6	-	-	-	-	-	
	S	67.6	69.5	-	72.2	72.6	68.4	72.5	68.7	72.1	69.9	69.9	69.9	-	-	-	-	-	
	U	6.9	1.8	-	2.1	3.6	3.6	3.7	2.3	3.0	4.6	1.6	2.5	-	-	-	-	-	
Clerical	E	7.7	7.0	5.5	5.8	7.0	7.2	9.5	8.7	7.9	7.1	7.5	8.0	-	-	-	-	-	
	S	87.5	88.1	88.6	88.9	87.8	87.8	86.8	87.0	87.3	86.7	87.5	87.2	-	-	-	-	-	
	U	4.8	4.9	5.9	5.3	4.7	4.9	3.7	4.2	4.6	6.2	5.0	4.8	-	-	-	-	-	
Personal Service	E	53.2	57.3	33.7	54.0	53.2	57.3	47.1	48.8	52.1	54.3	54.9	54.1	-	-	-	-	-	
	S	64.7	41.6	65.2	44.5	65.2	44.5	41.7	49.4	42.8	44.5	43.7	44.6	-	-	-	-	-	
	U	2.1	1.1	1.1	1.5	1.6	1.0	3.5	1.9	4.1	1.2	1.6	1.3	-	-	-	-	-	
Entertainment	E	23.6	-	-	2.8	2.8	2.8	11.6	3.1	2.8	8.9	11.4	8.6	-	-	-	-	-	
	S	59.5	-	-	56.9	56.9	56.9	58.8	57.3	56.9	60.4	58.6	60.0	-	-	-	-	-	
	U	37.1	-	-	40.3	46.3	40.3	39.8	39.6	40.2	30.7	30.7	31.4	-	-	-	-	-	
Protection	E	25.0	30.6	5.3	25.7	15.6	23.1	19.9	24.3	21.4	22.2	27.7	24.9	-	-	-	-	-	
	S	62.5	62.5	43.6	61.2	51.6	51.6	39.9	37.9	37.5	50.2	60.5	60.5	-	-	-	-	-	
	U	16.6	8.9	31.1	31.1	31.1	31.1	37.8	23.1	15.7	21.1	19.6	19.6	-	-	-	-	-	
Education and Training	E	-	-	-	-	28.4	-	27.7	40.7	58.3	2.3	12.8	2.4	-	-	-	-	-	
	S	-	-	-	-	42.8	-	42.1	38.0	27.6	53.6	51.2	53.6	-	-	-	-	-	
	U	-	-	-	-	30.8	-	30.2	23.3	14.1	44.1	36.0	44.0	-	-	-	-	-	
Health	E	18.0	27.5	-	5.9	9.6	12.3	12.8	3.2	5.9	12.6	6.8	12.4	-	-	-	-	-	
	S	55.2	63.7	-	72.6	67.9	71.7	63.6	35.9	64.0	69.8	67.1	69.5	-	-	-	-	-	
	U	16.8	8.8	-	21.3	22.7	15.0	23.6	58.9	30.1	17.6	26.1	18.1	-	-	-	-	-	
Welfare	E	-	-	-	-	4.5	-	-	-	-	9.1	4.5	8.7	-	-	-	-	-	
	S	-	-	-	-	34.1	-	-	-	-	51.3	34.1	50.2	-	-	-	-	-	
	U	-	-	-	-	61.6	-	-	-	-	39.6	61.6	41.1	-	-	-	-	-	
Administration and Organization	E	11.2	22.8	9.2	17.2	9.3	12.2	9.5	10.7	15.0	16.2	11.9	16.0	-	-	-	-	-	
	S	70.7	61.2	83.6	64.0	66.8	72.1	75.6	73.1	67.7	59.0	59.2	66.6	-	-	-	-	-	
	U	18.1	16.0	27.2	18.1	24.1	15.7	15.1	18.2	17.3	16.0	28.9	-	-	-	-	-	-	
Research and Design	E	5.3	15.6	5.3	5.3	5.3	5.3	6.8	5.3	5.3	5.3	5.3	5.5	-	-	-	-	-	
	S	63.6	41.6	63.6	63.6	63.6	63.6	45.3	63.6	42.6	42.6	63.6	63.6	-	-	-	-	-	
	U	51.1	42.0	51.1	51.1	51.1	51.1	47.9	51.1	51.1	51.1	51.1	51.1	-	-	-	-	-	
Total	E	55.0	36.8	48.0	12.1	43.2	12.3	12.5	21.9	10.7	28.7	11.8	28.4	-	-	-	-	-	
	S	63.5	59.5	48.1	81.3	54.1	81.4	82.6	73.4	84.3	57.3	80.1	63.1	-	-	-	-	-	
	U	1.3	3.7	3.9	6.6	2.7	5.3	4.9	4.7	5.0	14.0	8.1	8.5	-	-	-	-	-	

(1) E - Elementary
 S - Secondary
 U - University

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